Marine Engineering and Shipping Age

Volume XXVII **July, 1922** **Number 7**

Published Monthly by
ALDRICH PUBLISHING COMPANY
In Conjunction With
SIMMONS-BOARDMAN PUBLISHING COMPANY
Woolworth Building, New York
F. B. WEBSTER, Editor
H. H. BROWN, Managing Editor
S. M. PHILLIPS, Associate Editor L. S. BLODGETT, Associate Editor
W. Z. GARDNER, News Editor

Contributing Editors

Rear Admiral C. W. Dyson, U. S. N.
Commander S. M. Robinson, U. S. N.
Professor C. H. Peabody
Captain C. A. McAllister, U.S.C.G. (Retired)
William Gatewood
H. McL. Harding
William T. Donnelly
James L. Bates

WE GUARANTEE that of this issue 5,450 copies were printed; that of these copies 3,964 were mailed to regular paid subscribers, 346 were provided for counter and news company sales, 212 were mailed to advertisers, 29 were mailed to employees and correspondents and 899 were provided for new subscriptions, copies lost in the mail and office use; that the total copies printed this year to date were 38,450—an average of 5,493 copies a month.

MARINE ENGINEERING AND SHIPPING AGE is a member of the Associated Business Papers, Inc. (A. B. P.), National Association of Periodical Publishers, Inc., New York Business Publishers' Association and the Audit Bureau of Circulation (A. B. C.).

Requests for change of address should reach us two weeks before the date of the issue with which it is to go into effect. It is difficult, and often impossible, to supply back numbers to replace those undelivered through failure to send advance notice. In sending us change of address, please be sure to send us your old address as well as the new one.

"To Be Or Not To Be?"

THE time for Congress to answer the merchant marine question yes or no has arrived. It must soon divulge whether or not it meant what it said in the preamble of the Merchant Marine Act of 1922 when it declared that it was the policy of the United States to develop an American merchant marine, under private ownership, adequate in size to meet our commercial needs in time of peace and to serve as a naval auxiliary in time of war, and that it, Congress, would do everything possible to attain this end. What are the indications?

The subsidy bill was introduced in the House by George W. Edmonds on June 14 and then referred to the Committee on Merchant Marine and Fisheries. This committee favorably reported the bill back to the House on June 16, the vote being 9 to 4. While such prompt action is not an assurance that the House will pass this legislation, nevertheless, it is a strong indication, when a committee, which has given careful study to a measure is so overwhelmingly in favor of it, that the necessity for its enactment into law will be just as apparent to Congress as a whole when it gets the opportunity to analyze and discuss the merits of the act.

Necessity alone, however, is not a sufficient reason, we are sorry to say, for anyone to expect favorable action from Congress. There must be a strong demand backed by the public opinion which in the last analysis is the real government of every civilized nation in the world today.

From no one is this demand more insistent than from our "first citizen," President Harding. True to his pre-election pledge, he has caused to be conducted one of the most complete and exhaustive studies on the shipping situation ever made. In this investigation the best known specialists in the marine field were called into consultation irrespective of their political affiliations. He has taken their facts and findings and presented them to Congress in a special message. He now demands that Congress take action on the shipping bill during the present session and should such action not be forthcoming, he has declared that he will exercise his prerogative and call a special session of Congress solely to consider this measure so vital to our merchant marine.

Following the lead of the President, by far the largest number of influential newspapers have expressed themselves editorially in favor of the subsidy. In a canvass of 300 of the leading papers the National Merchant Marine Association reports that over 70 percent favor this measure. The shipping bill is not only receiving a large amount of editorial comment but it is also obtaining a tremendous amount of publicity in the news columns. Who ever saw so much space devoted to shipping legislation before? Front page stories and feature articles particularly in the newspapers of the interior are the strongest indication that the farmer, the manufacturer, the business man and the working man recognize that the American merchant marine will benefit themselves as well as those who live on the seacoast.

The endorsements that the subsidy bill has received from trade organizations, commercial bodies and chambers of commerce from all over the country and representing every phase of industry—agriculture, mining, manufacturing and business—ought to convince Congress and are in fact one of the best indications that the time for action is not to be deferred. The opponents of the bill are playing for time, knowing full well that they cannot defeat it, if action is taken now. Foreign propaganda and stubbornness, however, will not avail; it is now or never for our merchant marine and it is going to be now.

Speaking of Discrimination

IN view of the apprehension that has been expressed by some of the opponents of the pending Shipping Bill that many of its provisions would offend other countries and thus invite retaliation, it is interesting to note the inducements that Canada offers to American manufacturers to establish branches in that country.

Generated on 2024-09-12 11:50 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

According to the Shipping and Exporting Register of Canada, Canadian-made goods get preferential advantages in British Empire countries as well as the benefit of trade agreement with certain foreign countries. Great Britain grants a rebate of one-third duty on certain articles, including motor cars, musical instruments, clock and cinematograph films, and one-sixth duty off numerous other articles. Mr. Lloyd George states that as articles are added to the tariff, preference will be extended to British Empire countries. The subject is listed for the next Imperial Conference.

"British Colonies in the West Indies, British Honduras, British Guiana and Central America give Canada a preference ranging from 10 to 50 percent. New Zealand imposes a surtax on goods from non-British countries averaging 12½ percent as well as a preference of about 10 percent. Cyprus gives one-third off on certain goods and one-sixth off on a large list of articles. Australia, Hong Kong and Shanghai are traditionally fore-disposed to trade with British Empire countries and have preferential measures under consideration."

The above list contains governmental regulations only. The preference given to British shipping by combinations of British banking and commercial organizations similar to that which caused the recent Egyptian cotton controversy are still more effective. Rebates have been in vogue for years. We will never have a merchant marine of our own until Congress grants sufficient protection to meet our competitors "on all fours."

Prohibition On The High Seas

THE question of whether or not liquor shall be sold on American vessels outside of the three-mile limit is one thing, but an agitation on the matter started by the executives of the Anheuser-Busch Brewing Company at a time nicely calculated to embarrass the pending shipping legislation is quite another.

We do not believe that the Messrs. Busch were actuated by any desire to aid the cause of prohibition or American shipping. On the contrary, it looks very much as though they hoped to start something that would eventually result in a modification of our laws so that they could resume their erstwhile business of the manufacture and sale of lager beer in this country.

They must know that, if American passenger ships are forbidden to serve liquors, it will not make the seas any drier. The only effect will be to drive prospective travelers to take passage in ships flying foreign flags. This means not only the citizens of other countries who are accustomed to the daily use of wine and liquor but also a large percentage of American travelers as well.

The Shipping Board has taken the ground that the eighteenth amendment does not apply to American ships outside of the three-mile limit. This decision is largely based on rulings of the Supreme Court to the effect that American ships are not a part of the territory of the United States except in a figurative sense. "Seamen employed on them cannot be said to be working in the United States. They are subject to the jurisdiction of local authorities in foreign waters for the punishment of crimes committed on board in such waters. Neutral merchant ships may be seized on the high seas and condemned by belligerents for carrying contraband of war. They may be seized, attached and sold under process in rem for claims in tort, or for debt in our own or in a foreign country. Political refugees may be removed from them when they are in foreign waters."

The above reasons ought to be sufficient to justify the Shipping Board in refusing to forbid the sale of liquor on American ships outside of the three mile limit but there is a grave danger that a bill will be introduced which will clearly put our ships under the restriction of the Volstead Act. But, if Congress feels that it is necessary or desirable to do this, it should make the law read that no merchant vessels whether *foreign* or domestic upon which intoxicating liquors are sold shall enter the ports of the United States, for in no other way can they prevent those who travel to and from our shores from obtaining all the booze they want en voyage.

A Dangerous Opponent

THE *New York Journal of Commerce* which recently issued a Shipping Supplement with the aid of and in conjunction with the *Manchester Guardian* (England) and whose revenue is largely derived from the advertisements of foreign shipping companies is trying its darndest to defeat the Shipping Bill or at least delay action on that measure until our merchant marine is as dead as the proverbial door nail.

In an editorial appearing in its issue of June 5 entitled "Subsidies and Treaties"—what subsidies have to do with treaties, by the way, is not explained—it says "competent men" (foreign or American?) "engaged in the shipping business assert that there is no reason why well managed American vessels cannot compete without subsidies and in fact we have at times carried as much as 50 percent of our foreign trade in our own bottoms."

When a daily newspaper, published in our greatest seaport and devoted to the commercial business and knowing full well that we have not had a privately owned merchant marine worthy of the name for seventy years makes a statement like this it is high time that its American patrons should question the sincerity of its often expressed solicitude for the welfare of our shipping.

The Shipping Board at the recent hearings furnished statistics showing that but 5 percent of our overseas commerce was then being carried in privately owned American bottoms and the *Journal of Commerce* in bringing up as a criterion a short period of time after the war when anything that could stay afloat could secure a cargo at an abnormally high freight rate is certainly not trying to present a true picture of the actual situation.

The very title of the editorial "Subsidies and Treaties" is bound to create the impression that we cannot assist our ships financially without breaking our diplomatic obligations. Having got this thought in the headline, which is as far as many of its readers go, it states in the middle of the editorial that "cool headed foreign competitors recognize that they have no basis for complaint, if the United States chooses to empty its Treasury into the pockets of shipowners."

One would think that some concern would be expressed at

Generated on 2024-09-12 11:23 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

the present drain on the Treasury which will continue as long as the Shipping Board is unable to dispose of its vessels, but on this subject it is silent.

The editorial, however, does give us an (encouraging?) suggestion. It says that there are no worse discriminations against American shipping than those that are practiced by some British territories. And, if we will only forego the indirect aids proposed in the Shipping Bill and devote our energies to requesting the stoppage of these discriminations, there is no doubt that we could obtain their abolition in a short time.

This sounds fine, but our legislators had similar information very much in mind when they framed Sections 28 and 34 of the Jones Act. Is it to be expected that foreign countries would be impressed with a promise not to enact legislation when for over two years discriminatory laws have been inoperative on our statute books?

Foreign Shipping Investments

EVER since Commodore Vanderbilt withdrew his money from shipping to invest it in railroads, giving as an explanation that he would rather make 6 percent than 3, it has been very difficult to interest capital in steamships flying the American flag.

Of course, the rapid developments that have taken place in the interior and western portions of this country have given many opportunities for secure investments at large profits; nevertheless, we have financed one of the greatest steamship companies in the world, namely, the International Mercantile Marine Company which has about 90 percent of its vessels registered under foreign flags. The fact that 93.5 percent of the stock in this company is American owned, according to a sworn statement made before the Shipping Board last October, is ample proof that our investors are not adverse to putting their money into the steamship business providing they can be convinced that it can be operated on a sound and profitable basis.

Over twenty years ago, when the International Mercantile Marine Company was formed, it was a wise and farsighted policy to purchase the finest ocean liners in the world, even though they were under foreign flags. The transaction met with general approval in this country and general disapproval in England, which was so intense in that country that the *Lusitania* and *Mauretania* were practically presented to the Cunard Line.

Many advantages have come from this transaction, not the least of which is the experience gained in steamship operation. The past is past but what can we say now to justify ourselves to future generations at the spectacle, when private capital is so urgently needed to purchase and operate American ships, of foreign steamship companies that are unable to raise money in their own country coming over here and floating their securities with apparent ease?

Only this spring we invested $7,360,000 in 25 year 6 percent bonds of the Holland-America Line which that company declared was desired for the purpose of new steamship construction. In May we invested $5,000,000 in 15 year 6 percent bonds of the Scandinavian American Line, which were heavily oversubscribed in one day. Both of these companies are competitors of American shipping and still we aid them to build the very type of vessels that we so urgently need to balance our fleet for commercial purposes and to prevent the 5-5-3 naval ratio from becoming a joke as far as naval auxiliaries are concerned.

In view of this, how can anyone say that shipping would not be an attractive investment to the American public provided it receives the proper Government aid? And, of far more importance, how can anyone say that American shipping does not need protection when foreign steamship lines can easily obtain all of our money that they want while the Shipping Board is finding it most difficult to sell either its ships or its securities and American shipping loans are almost impossible to float?

Agamemnon and Mount Vernon

THERE is no one more aware of our lack of fast passenger ships than the chairman of the Shipping Board. It is largely due to his efforts that the *Leviathan* is now being reconditioned into the finest ship afloat. When finished, however, she will be the only liner that we will have in service capable of maintaining a sustained sea speed of 22 knots or over.

One ship alone cannot maintain an efficient express passenger service and it will therefore be necessary either to match the *Leviathan* with some such ship as the *Columbus* of the North German Lloyd Line or to recondition the *Agamemnon* and *Mount Vernon*. Each of these two ships is capable of making 22 knots or better and they can be fitted out for about $2,500,000 apiece in eight months' time in any of our well equipped shipyards.

In the January issue of MARINE ENGINEERING AND SHIPPING AGE, we published an article analyzing the economic possibilities of these two ships and there were several well known shipping men at that time who favored reconditioning the *Agamemnon* and *Mount Vernon* in preference to the *Leviathan*.

It was pointed out, however, that the Shipping Board expected to be in a much stronger financial position on the first of July, which is apparently the case, and it was hoped that the President's plan for aiding the development of our merchant marine would be in force. Therefore, we did not feel that it was a case of the *Leviathan* versus the *Agamemnon* and *Mount Vernon* but simply the *Leviathan* first and the other two following.

These two ships are still lying at their dock. So far as we know there has been no definite policy in regard to their disposition adopted, although it is reported that they are about due for serious consideration. We cannot sell them to a foreign company for they would be immediately fitted out and placed in competition with our own vessels and, if it would pay a foreign company to do this, why should we hesitate?

It is not necessary to recondition these vessels in as luxurious a manner as the *Leviathan*. If they are provided with a standard of passenger accommodations equal to those in the *George Washington* or are based on what a conservative steamship owner would spend under like conditions, they will make a very satisfactory addition to our fleet.

Generated on 2024-09-12 11:23 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

The Close of the Battle for Independence on the Seas

Claims of the Opponents of the Ship Subsidy Bill Prove Groundless—Facts and Patriotism Will Win the Fight

By "Old Scotch"

FROM time immemorial a country's shipping has been considered the ward of the nation. It is unlike every other kind of national industry, in that it must necessarily be conducted away from home. If it thrives without direct or indirect aid, all well and good but, if any maritime nation finds that its shipping engaged in transacting its overseas trade cannot be self-sustaining, the business of that nation will not succeed unless its undivided support is given to maintaining sufficient ships to conduct its just proportion of foreign trade.

These economic facts have gradually sunk into the minds of the American people. The long hearings conducted by the joint Congressional committee on the pending subsidy bill have not brought out much that was not already known concerning our shipping situation and, as a whole, the results may be summed up as giving conclusive evidence that national assistance must be given to our ships or they cannot compete with their foreign rivals.

Opponents' Claim Highly Fallacious

A weak effort has been made to prove that our fleet, having a greater proportion of oil-burning vessels than that of any other nation, must necessarily have, on that account, sufficient advantage to overcome the other differentials in cost. In the days of relatively high cost of coal and low cost of oil, there might have been some grounds for such a contention. Now, however, the claim is highly fallacious, as those of us who are familiar with existing and probable future conditions are quite confident that in steam vessels there will probably be a number of conversions from oil burning to coal burning in the not distant future.

The burning of oil for steam production on land or sea is even now against economic conditions, when we take into consideration the limited known supplies of oil and the enormous annual increases of consumption of gasoline and other motor fuels. In the writer's opinion, another decade will see a great diminution in the number of oil-fired steamers and a great increase in motor driven vessels. With our dwindling supplies of oil, there can be no question as to the substitution of motive power which uses only one-third of a pound per horsepower hour for steam machinery which, at the best, uses one pound of oil per horsepower hour.

Fuel Issue Failed Dismally

So, we may as well dismiss the idea that American merchant vessels have any advantage over foreign fleets, because of the larger use of oil as fuel. On the contrary, because of our lack of progress in the adoption of Diesel engined vessels we are at a decided disadvantage with other nations, if we consider the fuel costs of operation.

This matter of fuel seems to have been the main issue raised by the opponents of the subsidy bill, and in that they have failed dismally. There remains no outstanding feature of the opposition to which any credence can be given by those inclined to vote against the pending bill.

A Mild Attack of "Buck Fever"

At this stage of the proceeding, the friends of the measure are going through a mild attack of what is known as "buck fever." That is entirely human and occurs to everybody who attempts to do anything out of the ordinary, which requires fortitude and persistency. We who advocate the measure are convinced that we are right and that it is a just bill, warranted by every condition which goes to make us a happy and prosperous nation. Why then become alarmed because of the various press stories which emanate from Washington as to the "grave doubts entertained by Congressional leaders" as to the ultimate passage of the bill?

True it is that members of the Senate and House who must come up for re-election in November next are apprehensive of every action they take in regard to the important bills now being considered by Congress. They always are at this stage of the proceedings, so far as that is concerned. In the matter of the ship subsidy bill they need have no alarm, if they vote for it; rather they should have some fears, if they vote against it.

The American people far and wide have been well educated on this subject in the past five years. It is naturally very difficult to gage public opinion in a vast country like ours, the only logical method being to appraise the editorial policy of the leading newspapers, as our public press taken on the whole both molds and reflects public opinion on great national subjects. It would be valueless to the average Senator or Congressman to know that the majority of papers in New York and San Francisco favored the subsidy bill, as the answer is that, being important seaports, they quite naturally would favor anything of benefit to shipping. The National Merchant Marine Association, with its headquarters at Washington, has recently performed a very valuable service towards ascertaining what the general sentiment of the country at large is towards this bill.

Press and Commercial Bodies in Favor of Subsidy Bill

Their poll covers the leading newspapers published in 43 different states. These papers, 300 in number, represent all shades of political affiliations, and it is most encouraging to learn that of that number 193 have expressed themselves unqualifiedly in favor of the subsidy bill, 77 were against and 30 were non-committal. Therefore, over 70 percent of the leading journals throughout the country are on record as favoring the passage of the bill.

Another barometer, second only to the public press, is the attitude of the leading commercial organizations throughout the country. These have, with but a very limited number of objections, gone on record as heartily in favor of the proposed direct and indirect aids. The United States Chamber of Commerce, representing commercial organizations throughout the entire land, at its recent national convention announced itself in favor of establishing and maintaining a merchant marine "of a capacity sufficient to transport at least 60 percent of the cargoes entering into American overseas commerce," which is exactly what is aimed at in the Jones-Greene bill. A special committee of the Chamber, composed of leading business men, after making an exhaustive inquiry into the subject, concluded its recommendations with the very logical statement that "To surmount the difficulties that lie before us will require time, patience, perseverance and the free exercise of those other qualities that have in other fields of endeavor led the American people to success. The committee doubts neither the results nor the justification of all the effort required to attain it."

Apprehension as to Passage of Bill Groundless

Backed as the measure is by the press, the great commercial organizations and an aroused public sentiment, we should

Generated on 2024-09-12 11:21 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

enter the close of the fight, when definite action is to be taken, without apprehension as to the ultimate results. "Let the heathen rage," the heathen being in this case those who are against our having a merchant marine for their own sinister self-interests. There is no occasion for the "buck fever," which seems to have seized some of the friends of the bill. During the recent centennial anniversary of the birthday of General Grant, many anecdotes were printed concerning that great military leader's life and acts. None was more interesting than one quoted from the General's own memoirs, and which is particularly applicable to present moment contemplation of the forthcoming battle in Congress.

It seems that young Grant had no fears at all in the many one-sided engagements in which he participated during the Mexican war. In his more mature years, after being placed in command of the Union troops about to begin fighting in Missouri, he proceeded to attack a strong Confederate position in the central part of the state. Upon approaching within four or five miles of where the battle should take place, the General admits that he was seized with a great feeling of apprehension, almost approaching cowardly fear. Being in command, he realized that it would not do for him, of all men, to show the white feather, so summoning all his will power he ordered the advance on the enemy. Arriving at the place where the opponents were supposed to open fire, he found that during the preceding night the enemy had decamped bag and baggage. "Then and there, I determined," said the General, "that the other fellow was even more scared than I was." So ever after that, throughout all his battles, the element of fear never entered his calculations.

While it is not expected that the enemy will fold up their tents and decamp, at the approaching subsidy battle in Congress, there is nothing for us to fear as to the result. After their "hot air barrage" of general debate on the bill has been exhausted, it will be found that the enemy has no heavy guns to bring into action. They are lacking in the ammunition of facts and patriotism, which are the essentials of winning a battle of this kind.

American Farmers and American Ships

Both the Farmers and Their Soldier Sons Recognize Folly of Depending on Foreign Nations for Ocean Transport

By Winthrop L. Marvin*

MOST of the farmers of this country—and particularly those farmers whose domiciles are between the Ohio River and the Rocky Mountains—do not dream of the conspicuous part which they have been playing this year in sundry European journals devoted to commerce and finance. When the United States Shipping Board last autumn began to prepare information for use in the lining out of a constructive National shipping policy, the editors of the transatlantic mercantile press instantly sat up and took notice. They began straightway to wonder and conjecture what the new American shipping legislation would be like, and when President Harding, with definite proposals at hand, made his eloquent appeal to Congress for an American merchant marine competent to serve the country in either peace or war, a very unmistakable agitation appeared among those overseas interests that had been monopolizing for many years nine-tenths of the ocean carrying trade of the American people.

They did not relish this demonstration that the Americans were preparing to "consolidate" an independent merchant shipping position of their own. The journals of European commerce confessed a fear of the consequences of President Harding's proposal that 50 percent of the immigrant traffic into the ports of the United States should be conveyed in American passenger vessels, or the plan for a deduction from the Federal income taxes of shippers of 5 percent of the freight moneys paid on goods transported in American ships. An American building fund for the encouragement of shipping, it was felt, might have something of the same results as the fund from the British treasury which built the *Mauretania* and *Lusitania*. And finally there was undeniable danger to European dreams of continued maritime monopoly in the mail subventions to fast liners and the subsidies or "compensation" to cargo ships of the United States engaged in international commerce.

CREATES CONSTERNATION ABROAD

There was almost a panic in maritime circles abroad when the National shipping bill was introduced. It was so unexpectedly far-reaching, so ingenious, so "adroit." Moreover, there was such a quick and formidable response to the appeal of the President from American manufacturers, merchants and bankers.

But those who presided over the destinies of the organs of European commercial and maritime interests found one consolation in the thought or hope that President Harding's constructive shipping program would be opposed and might be defeated by "the Western farmers" and "the Democratic party." These two influences were eagerly invoked in the European press as the faithful and sure protectors of European interests. In all of which those wiseacres who were commenting on the American shipping legislation overseas showed that they were not entirely acquainted with either the farmers or the Democratic party. There are a great many good Democratic citizens in this country of ours who want to see an American merchant marine and naval reserve just as earnestly as any Republican followers of President Harding. There are also hundreds of thousands of American farmers who have understood the problem of the merchant marine and have held the same convictions about it as have their salt water fellow countrymen.

It is a mistake to assume, as not only these European editors and statesmen but even some onlookers in this country have been doing, that "the farmers" are necessarily opposed to National aid for American ships. Many farmers are opposed, without question. But the curious observer who will turn back to the files of the *Congressional Record* from 1900 to 1908 and thereabouts, when the Frye-Hanna and Gallinger shipping bills were under consideration, will discover that the majority of the senators and representatives in Congress from the Middle West, or at least the majority of those of the Republican persuasion, spoke and voted for the constructive shipping policies of McKinley and Roosevelt. It was only a minority of those senators and representatives who were against the policies—but this minority, combined with the almost solid Democratic opposition of the time, was able to turn the scale against American shipping legislation by a narrow margin of from three to seven in the House of Representatives.

*Vice-president and general manager of the American Steamship Owners' Association, New York.

Generated on 2024-09-12 11:20 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

The farmers of America, taking them as a whole, are not less intelligent or less patriotic or less far-sighted than other Americans. The great majority of our farmers live far from the sea. With the building and handling of ocean ships they are not acquainted. But they are also reading men and thinking men in the same degree as other great classes of our citizens, and the specious plea of European ship monopolists that foreigners be allowed to carry our ocean trade because they can do it "more cheaply" has not deceived all of these farmers by any means, or even at any time a majority of them.

In the recent hearings on the Shipping Bill before Congress, what is regarded as the soundest and strongest of the farmers' distinctive organizations, while not enamored of the word "subsidy," came out through its chief executive for the passage of the Harding Shipping Bill. There are particular reasons, and very strong compelling reasons, why the farmers of the country at large, North and South, have a great deal at stake in the development of an adequate merchant marine. In grain, cotton, provisions and some other things, American farmers have a considerable surplus of products beyond the consuming power of America herself. These goods must be exported, in order that the farmers may realize proper compensation for their labors. For the export of these surplus products ocean ships, operated on dependable, regular schedules, are essential, and for the fullest protection of the farmers' interests these ships must be built, owned and controlled in the United States, so that they may be available in peace or war to serve "America first."

SCARCITY OF SHIPS REMEMBERED

This is exactly what the American farmers did not have in 1914. On the contrary, it was the ships of Great Britain, Germany, France, Italy and Japan that were then carrying all but a small fraction of our ocean commerce. What happened on the outbreak of the war is keenly remembered. The German ships, of course, were immediately captured or laid up. Those British ships which the British government required for war purposes were immediately ordered home. So were the ships of France and later of Japan and Italy. Then there came to the American farmers—to the growers of wheat and growers of cotton—a sharp realizing sense of the essential humbug of the proposition, "Let foreigners carry our trade—they can do it so cheaply!"

Instead of "cheap," this infatuated dependence on foreigners instantly became exceedingly dear. Because there were so few foreign ships left in our commerce, and because only a handful of American ships were available, freight rates on the export of our wheat and cotton to Europe were straightway raised to an unheard-of altitude. In July of 1914, a month before the outbreak of the war, the freight rate on grain from New York to the United Kingdom was four or five cents a bushel. By December, 1914, this freight rate had advanced to 16 or 17 cents a bushel—an increase of about 300 percent. To the Continental port of Rotterdam before the war the freight rate on grain from New York had been 6¼ cents a bushel. In December, 1914, it had reached 30¾ cents a bushel—an increase of about 400 percent. So with cotton. Most Southern senators and representatives before the war had voted doggedly against any National aid or encouragement to the merchant marine. They were very severe in their strictures on the "subsidists." They were fond of arguing as a whole that foreigners ought to be allowed to transport our cotton because they could do it "so cheaply!"

The freight rate on cotton from New York to Liverpool before the war was 20 cents a hundred. In December, 1914, it was 75 cents a hundred. The freight rates on cotton from the Gulf to Rotterdam, like the freight rates on grain, had increased 400 percent.

And this was not the end; it was only the beginning. Month after month, as the folly of dependence on foreigners for ocean shipping bit more and more deeply into the consciousness of the American people, freight rates on grain and cotton to Europe, still dominated as they had been before the war by alien interests, kept on increasing by leaps and bounds—and the Democratic Secretary of the Treasury in the cabinet of President Wilson was proclaiming to the country that dependence on Europe for the sea transportation of our products was a policy that was costing the American people many hundreds of millions of dollars a year!

HEAVY TOLL EXACTED BY FOREIGN STEAMSHIP OWNERS

"From every Atlantic and Gulf port," declared Secretary McAdoo to an audience* in the city of Chicago, "there comes the cry of scarcity of ships and exorbitant rates. These enormous increases in rates," Mr. McAdoo added, "constitute a heavy tax on the American producer. They are reflected in the lessened prices which he has been compelled to take for his product. The increased cost of carrying American produce and commodities to European ports since the war broke out runs into millions." And he added impressively, "This great sum represents a heavy toll that has been exacted by foreign steamship owners from American shippers and producers. It is in effect a penalty they are paying for the failure of American politicians to carry out their repeated promises to the American people. Foreign owners may increase their rates overnight arbitrarily—we have no power to prevent it—and we must pay the price or stop our shipments!"

Secretary McAdoo, a fervent Democrat and a red-blooded American, placed the blame right where it belonged—on the avaricious "foreign steamship owners" and on the American politicians who had failed "to carry out their repeated promises to the American people."

Because it was the farmers of the West and of the South who had the bulkiest products for export—products which absolutely had to be shipped abroad—it was these Western and Southern farmers who were the heaviest sufferers from the lack of an adequate American merchant marine.

To say that these farmers have forgotten their experience of 1914-1918, and that they now have no interest in American ships, is to accuse them of a lack of intelligence of which they are emphatically not guilty. They remember—and their soldier sons remember. For when in self-defence the United States herself entered the world war, and it became necessary for our nation to find ships to send its own boys overseas, the poverty of the American merchant marine and the unconscionable folly of depending on foreign nations for ocean transport in peace or war became even more astounding than before. Because there were so few American ocean passenger steamers it was necessary for the government hurriedly to fit cargo steamers of relatively low speed and to improvise all kinds of transport craft, with the result of an immensely increased hazard of destruction by the German submarines. And to make matters still worse, when the painful scenes that accompanied the torpedoing of the *Antilles* and the *Finland*—the rush of panic-stricken foreign seamen to the boats, leaving the soldiers and the sick behind—compelled the Navy Department to issue a command that all merchant transports should be manned by the 100 percent Americans of the Navy, there had to be ordered to these transports raw sailor recruits from the prairies and the cotton fields who had never seen a ship before they donned the blue, and, of course, were totally without experience as seamen.

Somehow—thanks to the too-small trained personnel of the regular Navy—we did manage to muddle through and get the boys across. But the awful peril of that situation is not yet forgotten, and never will be forgotten by the American people. Hundreds of thousands of young Western and Southern soldiers and seamen who traveled the road to

*Address of Hon. William G. McAdoo before the Commercial Club of Chicago, January 9, 1915.

(*Continued on page* 421)

Generated on 2024-09-12 11:26 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Revised Ship Subsidy Bill Analyzed

Member of Merchant Marine and Fisheries Committee Explains Features of Bill as Reported to the House

By Congressman George W. Edmonds

I AM naturally proud of the work of my sub-committee. This bill, together with the Shipping Bill, 1916, and the Merchant Marine Act, 1920, will make a record of constructive legislation upon a comparatively new subject to the present generation of Americans, which any legislative body could well point to with pride. This bill has required the best that can be collected from the brains of men in many callings, and collectively, if passed by Congress, will mean that 50 or 60 percent of our foreign commerce will be again traveling the seas under the American flag. I say collectively because each section of the proposed bill is interwoven with the other, each having its own particular aid to give, and particular performance to bring into action.

As a whole it is like a house of stone and while made up of many blocks, joined together by proper cement, the completed structure will give the required result. The bill as compared with the bill introduced on February 28, contains the following important changes:

TITLE I—SECTION 1

The section in regard to the sale of the vessels has been amended so as to read:

"Public or private competitive sale," also interest on unpaid purchase price has been increased to 4 percent from 2 percent.

Also the following has been added:

"The payments of principal shall be so arranged that the amounts due or paid under the contract of sale as principal up to any moment of time shall be sufficient to cover depreciation of the vessel up to such moment."

TITLE I—SECTION 2

New Section 2 provides that in selling the vessels the board should be careful to encourage present lines, particularly those operated by residents of particular communities, so that they may arrange to purchase the ships. It further prohibits the board from selling such vessels to persons outside of the domestic communities for a period of two years, so as to give them every opportunity to consummate their purchase.

Monopoly of ships or ports is declared against the policy of the Congress.

TITLE I—SECTION 3

There has been virtually no change in the construction fund except that it has been made explicit that this is a revolving fund; the amount remains at $125,000,000 and the interest not less than 2 percent.

TITLE II—SECTION 201

The taxation features in the new bill remain virtually the same. The construction tax deductions are the same as in the Merchant Marine Act, 1920. Only the administrative features have been made more explicit, so that there can be no question of doubt of their operating successfully.

TITLE II—SECTION 272

The depreciation feature of the taxation provision of the bill has been explicitly stated so that the depreciation arising out of war conditions can be spread over five years. This will assist in helping out the extraordinary losses in shipping property.

TITLE II—SECTION 273

The section containing the 5 percent deduction for shippers on freight paid in American vessels and applicable to their income taxes remains in the bill, the provisions being fully written out in the bill. The doubling of tonnage taxes as provided in the bill are retained in the new bill, excepting that they are not doubled upon power vessels of under 1,500 tons, or sailing vessels of under 1,000 tons, it being contended that these vessels being not subject to compensation should not have the extra tonnage tax to pay.

Owing to treaty obligations there has been a new immigration section placed in the bill. It reads as follows:

TITLE III—SECTIONS 301 TO 304 INCLUSIVE

"Sec. 301. As nearly as practicable one-half of the total number of immigrants, admitted to the United States in any fiscal year, shall be transported in vessels registered, or enrolled and licensed, under the laws of the United States."

"Sec. 302. The Commissioner-General of Immigration with the approval of the Secretary of Labor shall make regulations necessary for the enforcement of Section 301. All such regulations, insofar as they relate to the administration of such section by diplomatic or consular officers of the United States, shall be subject to the approval of the Secretary of State."

"Sec. 303. Section 301 shall not take effect as to immigrants transported in a vessel documented under the laws of any foreign country until a time fixed by proclamation of the President. The President is authorized and directed, whenever in his opinion the provisions of this title or of regulations made thereunder, are or may be in conflict with treaties or conventions with a foreign country, to take such steps as may, in his opinion, be necessary to remove such conflict. Whenever, in his opinion, no such conflict exists

Subsidy Bill Postponed a Month

President Harding informally sanctioned on June 20 a postponement of consideration of the ship subsidy bill in the House for approximately a month, so that Congressmen may have an opportunity to visit their districts and discuss the bill with their constituents. The President regards the plans for establishing an American merchant marine as a big American problem and he wants the people to understand it. "The plan is unfailing in its appeal to the sober judgment of the American people," the President said.

The President still feels that it is most vital to have the question settled at this session of Congress and he will, therefore, continue to insist that Congress express itself definitely before adjourning. If this is not done, the President will carry out his announced plan to call an extra session this summer.—The Editor.

Generated on 2024-09-12 11:27 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

in the case of any country he shall proclaim, and the provisions of this title and regulations made thereunder shall take effect in the case of immigrants transported in vessels documented under the laws of such country at the time specified in the proclamation therefor."

"Sec. 304. The term 'United States' as used in this title in a geographical sense means the several States, the Territories of Alaska and Hawaii, the District of Columbia, Porto Rico, and the Virgin Islands."

The Naval Reserve section has been dropped in the new bill.

TITLE IV—SECTION 402

There has been no change in the sources of the fund for compensation:

1. All tonnage taxes and light money.
2. Ten percent of the customs duties.
3. Compensation for first, second and third-class mails.
4. Any amounts returned by the limitation of profits clause.

TITLE IV—SECTION 403

Contracts for compensation are limited to 10 years.

TITLE IV—SECTION 404

The provisions of the contracts to be made are fully set forth in the bill, and there has been no change in the basic compensation except that the special compensation commences at 12 knots instead of 13 knots as in the original bill.

TITLE IV—SECTION 405

All definitions in this section have been carefully worked out so as to cover the contingencies that arise in a business of varied character.

TITLE IV—SECTION 406

The compensation limitation as to size of power-driven vessels remains the same, 1,500 tons, but compensation is paid to sailing vessels of over 1,000 tons.

Rating must be made by the American Bureau of Shipping, and a new paragraph has been added requiring one-half of the crew in both deck and engine department to be citizens of the United States.

Vessels built in a foreign country before the passage of this act and essential to the development of an American merchant marine can be transferred to American registry upon agreement by five members of the board, and receive compensation. This privilege is limited to three years from the passage of the act and is intended to admit only those vessels necessary to round out the merchant fleet, and in cases which require expeditious action.

TITLE IV—SECTIONS 407 AND 408

Foreign trade is particularly defined in these sections of the new bill.

TITLE IV—SECTION 409

It is required that after three years 75 percent of any owner's tonnage must be American owned and registered under the laws of the United States. This covers affiliated concerns and such concerns are closely described.

TITLE IV—SECTION 410

The board has the power upon vote of five members to increase or decrease the compensation when it is found advisable by the circumstances of the case.

TITLE IV—SECTION 412

Any vessel which has received compensation may be requisitioned in time of war or national emergency, the vessel so requisitioned or chartered shall receive a fair value for the purchase or service with no enhancement in value by the causes necessitating the taking, the owner shall under no circumstances receive consequential damages arising out of such taking or use.

TITLE IV—SECTION 413

Repairs, unless necessary for the safety of the vessel, shall be made in the United States or its territories including the Canal Zone, the exception in this section applies to feeder vessels, which do not travel between United States ports.

TITLE IV—SECTION 414

The carriage of the first, second and third class mails is provided for, the Post Office Department still making the contract directly with the vessels for the carriage of the parcels post. No change is made in the regulations, everything is carried on by the Post Office Department as at present excepting that the compensation for its carriage is paid into the merchant marine fund when the carriage is done by vessels receiving compensation from that fund.

TITLE IV—SECTIONS 415 AND 416

When a vessel receiving compensation is sold, its contract for the same is closed unless a new contract is made by the purchaser, with the exception that the purchaser must purchase the vessel subject to the right of the United States to take or use such vessel in emergency for the full term of the contract.

TITLE IV—SECTIONS 417 TO 419 INCLUSIVE

The limitation of compensation is entered into fully in the new bill, and every endeavor has been made to protect the government from the many complications which arise from the many and various business situations that arise from the ramifications to be found in the shipping business.

TITLES V AND VII

The use of the Army and Navy transports necessary to build up the overseas shipping is continued in this bill as in the original bill, as is also the requirement that government officials use American ships whenever possible.

TITLE VI—SECTIONS 601 TO 603 INCLUSIVE

It is endeavored in the bill to bring about an understanding between the Interstate Commerce Commission and the United States Shipping Board by arranging for a joint committee to clarify the situation in regard to through freight, so that something approaching the correlation between rail and water carriers in foreign countries can be covered in this country by our connecting rail and water lines.

TITLE VI—SECTION 604

The bill also clarifies the interstate commerce act by describing under what conditions a railroad can become interested in vessels.

TITLE VI—SECTION 605

It also arranges to enlarge the powers given the board by the Shipping Act of 1916 in Section 15 so that a thorough record of agreements between shipping companies, or between shipping companies and other carriers, shall be subject to the approval of the board; this covers all common carriers by water and includes the coastwise business. This section is subject to a heavy penalty for violation.

TITLE VI—SECTION 607

In order to make Section 28 of the Merchant Marine Act of 1920 operative, the bill has clarified the section, and it is believed that all delay in placing this section in operation should now be eliminated; as this gives preferential railroad rates to American vessels it will go a long way in assisting in securing the necessary cargo both of imports and exports for our ships.

It is provided in the amendment to Section 28 that the Shipping Board and the Interstate Commerce Commission have the power jointly to suspend the application of the provisions of this section when in their judgment it would operate to the prejudice of any particular port.

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Complete Text of Revised Merchant Marine Act, 1922

A BILL—To amend and supplement the Merchant Marine Act, 1920, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I—AMENDMENTS TO THE MERCHANT MARINE ACT, 1920

SEC. 1. Section 5 of the Merchant Marine Act, 1920, is amended to read as follows:

"SEC. 5. (a) That in order to accomplish the declared purposes of this Act, and to carry out the policy declared in section 1 hereof, the board is authorized and directed to sell, as soon as practicable, consistent with good business methods and the objects and purposes to be attained by this Act, at public or private competitive sale after appraisement and due advertisement, to persons who are citizens of the United States, except as provided in section 6 of this Act, all the vessels referred to in section 4 of this Act or otherwise acquired by the board.

"(b) Any vessel may be sold without such advertisement or such competitive sale, if such action is specifically authorized by the board upon an affirmative vote of not less than five of its members, and if such vote and a full statement of the reasons for authorizing such sale are spread upon the minutes of the board.

"(c) Any sale under this section shall be made at such prices and on such terms and conditions, including the use or disposition of the vessel by the purchaser, as the board may prescribe; except that (1) the completion of the payment of the purchase price and interest shall not be deferred more than 15 years after the making of the contract of sale, (2) interest on the unpaid purchase price shall be payable at least annually at a rate of not less than 4 per centum per annum, and (3) the payments of principal shall be so arranged that the amounts due or paid under the contract of sale as principal up to any moment of time shall be sufficient to cover depreciation of the vessel up to such moment, unless the board waives this requirement upon the giving of adequate security.

"(d) All sales made under the authority of this Act shall be subject to the limitations and restrictions of section 9 of the Shipping Act, 1916, as amended."

SEC. 2. (a) Section 7 of the Merchant Marine Act, 1920, is amended by inserting after the first proviso thereof the following: "*Provided further*, That domestic communities primarily interested in such lines shall be understood to mean the geographical divisions of the coast lines of the United States known as the North Atlantic, South Atlantic, Gulf, and Pacific coasts, together with the particular ports from which such lines may run or be intended to run, and the territorial regions and zones naturally tributary to such ports and coastal divisions: *Provided further*, That the board shall not for the period of two years after the enactment of the Merchant Marine Act, 1922, sell such vessels to persons other than those who have the support, financial and otherwise, of the domestic communities primarily interested in such lines:"

(b) Such section is further amended by adding at the end thereof a new paragraph to read as follows:

"It is hereby declared to be the policy of Congress to discourage monopoly in the American merchant marine, and, in pursuance of this policy, the board is directed, in the development of its sales policy, to continue as far as possible and practicable, subject to the provisions of this section, all existing steamship routes and regular services, and to endeavor in every way to bring about the permanent establishment of such routes and services, and their retention, as far as possible, in the hands of persons having the support, financial and otherwise, of the domestic communities primarily interested in such routes and services. In carrying out the provisions of this section the board is directed to investigate fully all matters in connection therewith, and to conduct hearings at which the persons interested in such communities may have the opportunity to express their views as to the course to be pursued by the board and the methods to be adopted in carrying out the policy herein prescribed."

SEC. 3. Section 11 of the Merchant Marine Act, 1920, is amended to read as follows:

"SEC. 11. (a) That there is hereby established in the Treasury a revolving fund to be known as the 'United States Shipping Board Construction Loan Fund' (hereinafter in this section called the 'loan fund'). There shall be covered into the loan fund all moneys which at the time of the enactment of the Merchant Marine Act, 1922, are in the fund created by this section as in force before its amendment by such Act; and the board may set aside and cover into the loan fund all receipts of the board, except appropriations made by law and profits of the board from the operation of vessels; but the total amount of moneys covered into the loan fund (other than payments upon the principal and interest upon loans made therefrom) shall not exceed $125,000,000.

"(b) The board may use the loan fund, to such extent as it deems necessary, for making loans to aid persons, citizens of the United States, (1) in the construction by them in private shipyards of the United States of vessels of the best and most efficient type equipped with the most efficient and the most economical machinery and commercial appliances, or (2) in the equipping by them of vessels already built with such machinery and commercial appliances.

"(c) No loan shall be made for a longer time than 15 years. All loans shall bear interest, payable at least annually, upon the unpaid principal at a rate not less than 2 per centum per annum. No loan shall be made (1) in the case of a loan for construction purposes, for a greater sum than two-thirds of the cost of the vessel to be constructed, nor (2) in the case of a loan for equipment purposes, for a greater sum than two-thirds of the cost of the equipment or two-thirds of the value of the vessel when thus reequipped, whichever is the lesser. The board shall require such security for the loan, including a first lien upon the entire interest in the vessel with reference to which the loan is made, as it deems necessary in order to insure the repayment of the loan with interest. In case of a loan under this section made after the enactment of the Merchant Marine Act, 1922, all payments upon the principal and interest of the loan shall be covered into the loan fund."

TITLE II—TAXATION

INCOME TAX OF VESSEL OWNERS

SEC. 201. Title II of the Revenue Act of 1921 is amended by adding at the end thereof seven new sections to read as follows:

"EXEMPTIONS TO VESSEL OWNERS

"SEC. 265. (a) That the owner of a vessel of 1,500 gross tons or more (as shown on her certificate of admeasurement), registered, or enrolled and licensed, under the laws of the United States, shall, for the taxable year 1921 and for each of the eight taxable years following, be allowed as a deduction in computing net income, in addition to the deductions allowed by sections 214, 234, and 266, an amount which bears the same ratio to his net income during the taxable year attributable to the operations of such vessel (computed without the benefit of this section) as his gross income attributable to the foreign operations of such vessel bears to his entire gross income attributable to the operations of such vessel: *Provided*, That in no case shall the amount by which the taxes imposed by this Act are diminished by reason of such deduction, exceed 50 per centum of the amount certified under clause (1) of subdivision (b) of this section, plus 100 per centum of the amount certified under clause (2) of subdivision (b) of this section.

"(b) Such deduction shall not be allowed unless the United States Shipping Board (hereinafter in this title referred to as the 'Board') has certified to the Commissioner (1) the amount invested by the taxpayer, after the begining of the taxable year for which the deduction is claimed and prior to the time fixed by law for filing the return, in the building in private shipyards in the United States of new vessels of a type and kind approved by the Board, to be registered, or enrolled and licensed, under the laws of the United States, and (2) the amount set aside by the taxpayer after the beginning of the taxable year for which the deduction is claimed and prior to the time fixed by law for filing the return, in a trust fund for investment in the building in private shipyards in the United States of new vessels of a type and kind approved by the Board, to be registered, or enrolled and licensed, under the laws of the United States.

"(c) As soon as practicable after the filing of the return for the taxable year for which the deduction is claimed, the amount by which the taxes imposed by this Act are diminished by reason of the deduction allowed under subdivision (a) of this section shall be determined by the Commissioner with the approval of the Secretary and certified by the latter to the Board. The Commissioner shall notify the taxpayer, who may immediately withdraw from such trust fund the amount, if any, by which the amount set aside in such trust fund exceeds the amount which should have been so set aside, together with the ratable part of the interest on or earnings from such trust fund since the date of its establishment.

"(d) For the purposes of this section there shall be deemed attributable to the foreign operations of a vessel so much of the gross income attributable to the operations of such vessel as is attributable to the carriage of passengers, cargo, and mails taken on board at a port not in the coastwise trade and discharged at a port whether or not in the coastwise trade, or taken on board at a port whether or not in the coastwise trade and discharged at a port not in the coastwise trade.

"(e) In no case shall the amount by which the tax due from a taxpayer, other than a corporation, is diminished by reason of the deduction allowed by this section, exceed the amount by which the tax would have been diminished if such taxpayer were a corporation.

"(f) That portion of the amount of invested capital attributable to the vessel, which bears the same ratio to such invested capital as the amount allowed as a deduction under the provisions of this section bears to the amount of the entire net income for the taxable year attributable to the operations of such vessel (computed without the benefit of this section), shall be regarded as an inadmissible asset in computing the tax imposed by Title III of this Act.

"SEC. 266. (a) That in the case of the sale, during the taxable year 1921 or any of the eight taxable years following, of a vessel launched prior to January 1, 1914, which was at the time of the enactment of the Merchant Marine Act, 1922, registered, enrolled, or licensed, under the laws of the United States, and which at no time thereafter, up to the time of sale, was under a foreign registry or flag (or, in case of sale made prior to the enactment of such Act, was at the time of the sale registered, enrolled, or licensed, under the laws of the United States), the taxable gain derived from the sale shall be allowed as a deduction (in addition to the deductions allowed by sections 214, 234, and 265) in computing the net income of the owner, if he is a citizen of the United States within the meaning of the Shipping Act, 1916, as amended by the Merchant Marine Act, 1920. Except as provided in subdivision (b) this deduction shall not be allowed unless (after the beginning of the taxable year for which the deduction is claimed and prior to the time fixed by law for filing the return) the entire proceeds of the sale have been invested by the taxpayer, or set aside by him in a trust fund for investment, in the building in private shipyards in the United States of new vessels of a type and kind approved by the board, to be registered, or enrolled and licensed, under the laws of the United States.

"(b) If a part only of the proceeds of the sale has been so invested or set aside in a trust fund, the amount of the deduction allowed under subdivision (a) shall be an amount which bears the same ratio to the taxable gain derived from the sale as the part of the proceeds so invested or set aside in a trust fund bears to the entire proceeds of the sale.

"(c) Upon the completion of the new vessel or vessels they shall, for the purposes of sections 202, 214 and 234, be treated as taking the place of a like proportion of the vessel sold.

"(d) Where a vessel is exchanged for property, or for money and property, the transaction shall, for the purposes of this section, be deemed to be a sale with reference to (1) the money received in the exchange, and (2) that part of the property received in the exchange which, under the provisions of subdivisions (c) and (e) of section 202, is considered in determining the taxable gain from the exchange.

"SEC. 267. (a) That if a taxpayer establishes a trust fund for investment under the provisions of section 265 or 266, the amount so set aside under section 266, or an amount equal to 200 per centum of the amount set aside under section 265, as the case may be, shall be actually invested by the taxpayer, within a reasonable time to be determined by the Board, in the building in private shipyards in the United States of new vessels of a type and kind approved by the Board, to be registered, or enrolled and licensed, under the laws of the United States. Upon failure to invest all or any part of such amount within the reasonable time fixed by the Board, or upon failure to register, or enroll and license, the new vessel or vessels under the laws of the United States within a reasonable time fixed by the Board, the Board shall immediately notify the Commissioner, and (1) the amount which should have been invested under the provisions of section 266 and this section, which is not so invested, or the amount invested in a vessel or vessels not registered, or enrolled and licensed, under the laws of the United States, shall be deemed, for the purposes of section 266, to have never been set aside in a trust fund for investment, and (2) 50 per centum of the amount which should have been invested under the provisions of section 265 and this section, which is not so invested, or 50 per centum of the amount invested in a vessel or vessels not registered, or enrolled and licensed, under the laws of the United States, shall be deemed, for the purposes of section 265, to have never been set aside in a trust fund for investment. Any additional tax due by reason of this adjustment of the amount set aside in the trust fund for investment under sections 265 and 266, together with interest thereon at the rate of one-half of 1 per centum per month from the time the tax was due, shall be payable upon demand at any time, notwithstanding the provisions of section 250. The amount in

Generated on 2024-09-12 11:27 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

the trust fund shall be first applied in payment of such additional tax due, and the instrument creating the trust fund shall provide for such application.

"(b) Whenever the taxpayer establishes a trust fund for investment under the provisions of section 265 or 266, the interest on or earnings from the amount set aside in such fund shall belong to the fund, and, for the purposes of subdivision (a) of this section, shall be considered as being a part of the amount set aside in the fund.

"SEC. 268. That the Commissioner may require a taxpayer, who claims the benefit of the deduction allowed by section 265 or 266 and establishes a trust fund for investment, to furnish a bond with such security or surety as the Commissioner shall require, for an amount not less than the estimated income, war-profits and excess-profits taxes that would have been payable but for the deduction claimed under those sections. Such bond shall be conditioned upon (a) the investment of the fund in accordance with the provisions of section 267, or the payment of the tax, together with interest, due by reason of failure to so invest, and (b) the registering, or enrolling and licensing, of the new vessels under the laws of the United States within the time fixed by the Board.

"SEC. 269. (a) That the amount invested under the provisions of sections 265, 266, or 267, or set aside in a trust fund for investment under the provisions of sections 265 or 266, must be from funds other than any loan which the taxpayer may have received from the Board under the provisions of section 11 of the Merchant Marine Act, 1920, as amended by the Merchant Marine Act, 1922.

"(b) So much of sections 265 and 266 as requires that the investment, or the setting aside of an amount in a trust fund for investment, shall be made prior to the time fixed by law for filing the return for the taxable year for which the deduction is claimed, shall be deemed complied with by a taxpayer with respect to the deduction for a taxable year ending prior to the time of the enactment of the Merchant Marine Act, 1922, if he makes such investment, or sets aside such amount in a trust fund, within 75 days after the enactment of such Act.

"SEC. 270. That section 265 and section 266 shall be deemed to have been in force on January 1, 1921.

"SEC. 271. That the benefits of section 265 and section 266 shall be allowed to the members of a partnership and the beneficiaries of an estate or trust under regulations prescribed by the Commissioner, with the approval of the Secretary."

SEC. 202. (a) Subdivision (a) of section 212 of the Revenue Act of 1921 is amended by striking out the word and figures "section 214" and inserting in lieu thereof the following: "sections 214, 265, and 266."

(b) Section 232 of the Revenue Act of 1921 is amended by striking out the word and figures "section 234" and inserting in lieu thereof the following: "sections 234, 265, and 266."

DEPRECIATION OF VESSELS

SEC. 203. Title II of the Revenue Act of 1921 is further amended by adding at the end thereof, after the sections added thereto by section 201 of this Act, a new section to read as follows:

"DEPRECIATION OF VESSELS

"SEC. 272. (a) That in the case of vessels registered, enrolled, or licensed, under the laws of the United States, the reasonable allowance for exhaustion, wear and tear, and obsolescence, provided in paragraph (8) of subdivision (a) of section 214, and in paragraph (7) of subdivision (a) of section 234, shall be determined, and allocated to the years in which sustained, under rules and regulations prescribed by the United States Shipping Board.

"(b) In the case of a vessel of 1,000 gross tons or more (as shown by her certificate of admeasurement), registered, enrolled, or licensed, under the laws of the United States, acquired after August 1, 1914, and prior to January 1, 1921, there shall be allowed for the taxable year 1922 and each of the four succeeding taxable years, a reasonable deduction for the exceptional decrease in value thereof since the date of acquisition, but not again including any amount otherwise allowed under this Act or any previous Act of Congress as a deduction in computing net income. This deduction shall be determined and allocated to the taxable year 1922 and the four succeeding taxable years under rules and regulations prescribed by the United States Shipping Board. At any time before March 15, 1927, the Commissioner may, and at the request of the taxpayer shall, reexamine the return, and if he then finds as a result of an appraisal or from other evidence that the value on which the tentative deduction for exceptional decrease in value was based, was incorrect or has changed, the income, war-profits and excess-profits taxes for the year or years affected shall be redetermined; and the amount of tax due upon such redetermination, if any, shall be paid upon notice and demand by the collector, and the amount of tax overpaid, if any, shall be credited or refunded to the taxpayer in accordance with the provisions of section 252.

"(c) This section shall take effect as of January 1, 1922."

INCOME TAX CREDIT FOR TRANSPORTATION BY WATER

SEC. 204. Title II of the Revenue Act of 1921 is further amended by adding, after the section added thereto by section 203 of this Act, a new section to read as follows:

"CREDIT FOR AMOUNTS PAID FOR WATER TRANSPORTATION

"SEC. 273. (a) That the tax computed under this title (less the credits provided by sections 222 and 238) shall be credited with an amount equal to 5 per centum of the amount of freight money paid (not accrued), by the taxpayer and for his own account, during the taxable year and after the enactment of the Merchant Marine Act, 1922, for the transportation after the enactment of such Act in a vessel, registered, or enrolled and licensed, under the laws of the United States, of cargo not taken on board at a port in the coastwise trade and discharged at another port in such trade. If such transportation is in a vessel chartered by the owner of any part of the cargo from a person not affiliated with such owner within the meaning of subdivision (b), the amount of freight money paid by the charterer for the transportation of such part of the cargo shall, for the purposes of this section, be such amount as is determined by the United States Shipping Board and certified by it to the Commissioner. In such cases the credit shall not be originally claimed by the taxpayer in his return, unless the return is accompanied by a copy of the certificate of the Shipping Board.

"(b) The credit provided in this section shall not be allowed with reference to transactions between persons who are affiliated. For the purposes of this section two or more corporations or associations shall be held to be affiliated if one corporation or association owns directly, or controls through closely affiliated interests or by a nominee or nominees, more than 50 per centum of the outstanding stock of or interest in the other; or if more than 50 per centum of the outstanding stock of or interest in such corporations or associations is owned directly, or controlled through closely affiliated interests or by a nominee or nominees, by the same interests. For the purposes of this section an individual or partnership shall be held to be affiliated with a corporation or association if more than 50 per centum of the outstanding stock of or interest in the corporation or association is owned directly, or controlled through closely affiliated interests or by a nominee or nominees, by the individual or partnership."

GOVERNMENT COMPENSATION TO VESSELS AS INCOME

SEC. 205. Subdivision (b) of section 213 of the Revenue Act of 1921 is amended by striking out the period at the end of paragraph (13) thereof, and inserting in lieu thereof a semicolon, and by adding after paragraph (13) a new paragraph to read as follows:

"(14) Amounts received by the owner of a vessel under section 403 of the Merchant Marine Act, 1922, out of the merchant marine fund created by such Act."

TONNAGE DUTIES

SEC. 206. After 30 days from the enactment of this Act all amounts required to be levied, collected, and paid as tonnage duties, tonnage taxes, or light money, except such amounts as are required to be paid into the Treasury of the Philippine Islands, shall be double the amounts which would be required to be levied, collected, and paid if this Act had not been enacted. This section shall not apply in the case of a sailing vessel (as defined in section 405) of less than 1,000 gross tons, or in the case of any other kind of vessel of less than 1,500 gross tons.

TITLE III—TRANSPORTATION OF IMMIGRANTS BY WATER

SEC. 301. As nearly as practicable one-half of the total number of immigrants, admitted to the United States in any fiscal year, shall be transported in vessels registered, or enrolled and licensed, under the laws of the United States.

SEC. 302. The Commissioner General of Immigration with the approval of the Secretary of Labor shall make regulations necessary for the enforcement of section 301. All such regulations, in so far as they relate to the administration of such section by diplomatic or consular officers of the United States, shall be subject to the approval of the Secretary of State.

SEC. 303. Section 301 shall not take effect as to immigrants transported in a vessel documented under the laws of any foreign country until a time fixed by proclamation of the President. The President is authorized and directed, whenever in his opinion the provisions of this title or of regulations made thereunder, are or may be in conflict with treaties or conventions with a foreign country, to take such steps as may, in his opinion, be necessary to remove such conflict. Whenever, in his opinion, no such conflict exists in the case of any country he shall so proclaim, and the provisions of this title and regulations made thereunder shall take effect in the case of immigrants transported in vessels documented under the laws of such country at the time specified in his proclamation therefor.

SEC. 304. The term "United States" as used in this title in a geographical sense means the several States, the Territories of Alaska and Hawaii, the District of Columbia, Porto Rico, and the Virgin Islands.

TITLE IV—COMPENSATION TO VESSELS OF THE UNITED STATES

DEFINITIONS

SEC. 401. When used hereinafter in this Act—

(a) The term "person" means individual, partnership, corporation, or association;

(b) The term "United States," when used in a geographical sense, means the several States and the District of Columbia;

(c) The term "citizen of the United States" has the meaning assigned to it by section 2 of the Shipping Act, 1916, as amended by the Merchant Marine Act, 1920; and

(d) The term "board" means the United States Shipping Board.

MERCHANT MARINE FUND

SEC. 402. There is hereby established in the Treasury a fund to be known as the "Merchant Marine Fund" (hereinafter in this title called the "fund"). The Secretary of the Treasury is authorized and directed to set aside in or credit to such fund, upon receipt, the following sums paid into the Treasury after the enactment of this Act:

(a) All tonnage duties, tonnage taxes, or light money, paid under law in force at the time of the enactment of this Act and under section 206 of this Act;

(b) 10 per centum of the amount of all customs duties paid under law in force at the time of the enactment of this Act or subsequently enacted;

(c) The amount which, except for the fact that the owner of the vessel has in force a contract with the board for compensation in respect to such vessel in accordance with the provisions of this title, would be payable, under law or any contract actually made thereunder, for the transportation of mails of any kind, except parcel post, by such vessel. Such amount shall be certified to the Secretary of the Treasury by the Postmaster General at least monthly; and

(d) All excess earnings paid by the owner of any vessel under the provisions of section 417.

CONTRACT FOR COMPENSATION

SEC. 403. (a) In order to aid the development and maintenance of the American Merchant Marine, to promote the growth of the foreign commerce of the United States, to contribute to the national defense and to carry out the policy set forth in section 1 of the Merchant Marine Act, 1920, the board is authorized and directed on behalf of the United States to enter into a contract with any person, a citizen of the United States who is the owner of a vessel, for the payment of compensation in respect to such vessel, subject to the limitations of this title. The board shall not be required to enter into such contract unless in the judgment of the board such person possesses such ability, experience, resources and character as, in the opinion of the board, to justify a belief that the payment of the compensation will be reasonably calculated to carry out such policies and otherwise promote the general welfare of the United States. The board shall not refuse to enter into any such contract on the ground that such person is not so qualified unless such refusal is specifically authorized by an affirmative vote of not less than five members of the board, and unless the vote and a full statement of the reasons for the refusal are spread upon the minutes of the board.

(b) Such contract shall provide that it shall be made for a period not exceeding ten years from the date thereof, and shall provide that the payments of the compensation shall be made at reasonable intervals not exceeding six months.

(c) The Secretary of the Treasury is authorized and directed to pay, out of any moneys in the fund, compensation to the owner of any vessel with whom there has been made a contract under this section; but such payment shall be made only upon vouchers signed by the chairman of the board, under authorization of the board. All moneys in the fund are hereby permanently appropriated for the purpose of making such payments and the refunds authorized by subdivision (j) of section 417.

AMOUNT OF COMPENSATION

SEC. 404. Compensation shall be computed as follows: For each gross ton of the vessel for each 100 nautical miles covered by the vessel, there shall be paid—

Generated on 2024-09-12 11:22 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

(a) Regardless of the speed of which the vessel is capable,—one-half of one cent; and

(b) In case of a power-driven vessel capable of making (when self-propelled solely by machinery) a speed of 12 knots or over when on such draft as the owner may select, and in addition to any amount payable to such vessel under subdivision (a),—

(1) One-tenth of one cent,—if such speed is 12 knots or over but less than 13 knots;

(2) Two-tenths of one cent,—if such speed is 13 knots or over but less than 14 knots;

(3) Three-tenths of one cent,—if such speed is 14 knots or over but less than 15 knots;

(4) Four-tenths of one cent,—if such speed is 15 knots or over but less than 16 knots;

(5) Five-tenths of one cent,—if such speed is 16 knots or over but less than 17 knots;

(6) Seven-tenths of one cent,—if such speed is 17 knots or over but less than 18 knots;

(7) Nine-tenths of one cent,—if such speed is 18 knots or over but less than 19 knots;

(8) One and one-tenth cents,—if such speed is 19 knots or over but less than 20 knots;

(9) One and three-tenths cents,—if such speed is 20 knots or over but less than 21 knots;

(10) One and five-tenths cents,—if such speed is 21 knots or over but less than 22 knots;

(11) One and eight-tenths cents,—if such speed is 22 knots or over but less than 23 knots; and

(12) Two and one-tenth cents,—if such speed is 23 knots or over.

SEC. 405. For the purpose of computing compensation under this title—

(a) A vessel shall be held to be power-driven if it is equipped so as to be self-propelled through the use of machinery, and if the rated horsepower of the propulsive machinery exceeds one-third the gross tonnage of the vessel;

(b) A vessel shall be held to be a sailing vessel if it is equipped so as to be self-propelled through the use of sails, and is not equipped so as to be self-propelled through the use of machinery;

(c) The gross tonnage of a vessel shall be as determined under the laws of the United States and stated upon the vessel's certificate of admeasurement;

(d) The speed which a vessel is capable of making on such draft as the owner may select, shall be ascertained by the board at such reasonable intervals and by such methods as the board may by regulation prescribe;

(e) The mileage covered by the vessel shall be determined solely by the distances of the direct, customary route, for vessels of the same type and kind upon similar voyages, between the ports touched by the vessel, based upon tables of such distances approved by the board; except that if such distances do not, in the opinion of the board, fairly represent the distances which, under efficient operation, are required actually to be traversed by the vessel upon its voyage, the board may increase the mileage to such an extent as it deems fair and reasonable; but in no case shall the mileage as so increased be in excess of the mileage actually traversed by the vessel;

(e) In computing mileage a fractional part of 100 miles shall be disregarded unless in excess of 50 miles, in which case it shall be counted as 100 miles;

(f) Any power-driven vessel of 5,000 gross tons or less but of 1,500 gross tons or over, shall be considered as if it were a vessel of 5,000 gross tons.

WHEN VESSELS NOT ENTITLED TO COMPENSATION

SEC. 406. (a) Compensation shall not be paid in respect to any sailing vessel whose tonnage is less than 1,000 gross tons, and shall not be paid in respect to any other kind of vessel whose tonnage is less than 1,500 gross tons.

(b) Compensation shall be paid in respect to any vessel only for mileage covered while the vessel—

(1) Is a privately owned merchant vessel; and

(2) Is registered, or enrolled and licensed, under the laws of the United States; and

(3) Is self-propelled by sails or machinery except when in distress or being aided by means of tugs or other assistance on entering or leaving port or in navigating any inland or restricted waterway; and

(4) Is classed by the American Bureau of Shipping in the highest classification open to vessels of its type and kind according to the rules of the bureau; and

(5) Carries a crew (exclusive of licensed officers required by law) at least two-thirds of which are citizens of the United States, and the remainder of which are individuals eligible to United States citizenship. During the first year after the enactment of this Act the required number of citizens of the United States shall be one-half instead of two-thirds; and, during the second year, six-tenths instead of two-thirds. In the case of passenger vessels the provisions of this paragraph shall apply only to the deck and engine departments. If the vessel is deprived of the services of any member of the crew by desertion, casualty, or other cause beyond the control of the master, in any port outside the United States or on the high seas, the right of the vessel's owner to compensation, during the period prior to the next arrival of the vessel at a port in the United States, shall not be impaired by failure to comply with the provisions of this paragraph, provided the owner and the master of the vessel exercise reasonable diligence to procure the necessary individuals to comply with such provisions. If the vessel is outside the United States at the time of the enactment of this Act, or on the first day of the second or third year after the enactment of this Act, the owner shall not be required to comply with the provisions of this paragraph applicable to such year until her first arrival at a port in the United States, if he complies with the provisions of this paragraph applicable to the previous year.

(c) Compensation shall not be paid in respect to any vessel unless the vessel—

(1) Is registered, enrolled, or licensed, under the laws of the United States on the sixtieth day after the enactment of this Act; or

(2) Is built in the United States, its Territories or possessions, or the Canal Zone, after the enactment of this Act; or

(3) Is, at the time of the enactment of this Act, undocumented and owned by a person, a citizen of the United States, and is not thereafter documented under the laws of any foreign country; or

(4) Is owned by the United States at the time of the enactment of this Act and is not thereafter documented under the laws of any foreign country, or

(5) Was built in a foreign country before the enactment of this Act, and is, within three years after the enactment of this Act, registered under the laws of the United States; except that compensation shall be paid in respect to any such foreign-built vessel only if such vessel is, upon the affirmative vote of at least five of the members of the board, specifically authorized to receive compensation and specifically certified to be essential to the proper development of the merchant marine of the United States by reason of the particular type or kind of vessel, and if such vote and a full statement of the reasons for such authorization and certification are spread upon the minutes of the board.

FOREIGN TRADE

SEC. 407. (a) Except as provided in subdivision (b), (d), or (e), a vessel shall for the purposes of this title, be held to be engaging in foreign trade while operated on any voyage as a merchant vessel.

(b) A vessel shall not, for the purpose of this title, be held to be engaged in foreign trade while carrying any passengers or cargo—

(1) Which are taken on board at a port in the United States and discharged at a port in the United States;

(2) Which are taken on board at a port in the United States and discharged at a port in Alaska or Porto Rico;

(3) Which are taken on board at a port in Alaska or Porto Rico and discharged at a port in the United States;

(4) Which are taken on board at a port in the United States and discharged at a port in Hawaii, if the revenue accruing to the vessel by reason of the carriage of such passengers and cargo amounts to more than one-fourth the total revenue accruing to the vessel by reason of the carriage from point of origin to point of distination of passengers and cargo on board at the time of departure from the last port of call in the United States;

(5) Which are taken on board at a port in Hawaii and discharged at a port in the United States, if the revenue accruing to the vessel by reason of the carriage of such passengers and cargo amounts to more than one-fourth the total revenue accruing to the vessel by reason of the carriage from point of origin to point of distination of the passengers and cargo on board at the time of departure from the last port of call in Hawaii; or

(6) Which are taken on board at a port in Alaska, Hawaii, Porto Rico, the Virgin Islands, the Philippine Islands, or the Canal Zone, and discharged at a port in the same Territory, possession, or Zone.

(c) Subdivision (b) shall not apply (1) to a voyage for the carriage of passengers on a special or sight-seeing tour, or for scientific purposes, if the vessel does not in the judgment of the board carry passengers or cargo in competition with vessels in the coastwise trade; nor (2) to merchant vessels while operating as auxiliaries to the military or naval forces of the United States.

(d) A vessel shall not, for the purposes of this title, be held to be engaged in foreign trade while moving without passengers or cargo—

(1) Between ports in the United States, unless the next carriage of passengers or cargo is to or from a port outside the United States, Alaska, Hawaii, and Porto Rico;

(2) Between the United States and Alaska, Hawaii, or Porto Rico, unless the next carriage of passengers or cargo is to or from a port outside the United States and outside such Territory or possession:

(3) Between a port in Alaska, Hawaii, or Porto Rico and a port in the same Territory or possession, unless the next carriage of passengers or cargo is to or from a port outside such Territory or possession and outside the United States; or

(4) Between a port in the Virgin Islands, the Philippine Islands, or the Canal Zone, and a port in the same possession or Zone, unless the next carriage of passengers or cargo is to or from a port outside such possession or Zone.

(e) A vessel shall not, for the purpose of this title, be held to be engaged in foreign trade while operating on the Great Lakes or adjacent or connecting waterways, unless the voyage begins or ends east of Quebec, Canada.

SEC. 408. (a) Compensation shall be paid in respect to any vessel only for mileage covered while the vessel is engaged in foreign trade upon a voyage of which one of the ports is a port of the United States, its Territories or possessions, or the Canal Zone; except that any vessel engaged in foreign trade shall be paid compensation for mileage covered in such trade during any period of time (1) if the vessel has entered or cleared from a port of the United States at any time during the 12 months prior to such period of time and after the making of the contract; or (2) if the vessel during the six months ending with such period of time has derived at least one-half of the total revenue accruing to it by reason of the carriage of passengers and cargo, from passengers and cargo received from or delivered to vessels which are registered, or enrolled and licensed, under the laws of the United States and whose voyage began or terminated at a port in the United States, its Territories or possessions, or the Canal Zone.

(b) Compensation shall not be paid in respect to any vessel for mileage covered upon a voyage in foreign trade during which the vessel enters or clears from a port in the United States, its Territories or possessions, or the Canal Zone, if the distance between the terminal ports of the voyage is less than 150 nautical miles.

OWNERSHIP OF VESSELS BY CITIZENS OF THE UNITED STATES

SEC. 409. (a) Compensation shall be paid in respect to any vessel only for mileage covered while the vessel is owned by a person, a citizen of the United States.

(b) Compensation earned after three years from the enactment of this Act shall not be paid to any vessel owner unless, at all times during the period over which such compensation was earned, at least 75 per centum of (1) the total gross tonnage of all vessels (other than those documented for the coastwise trade only and other than those operating on the Great Lakes or adjacent or connecting waterways upon voyages neither beginning nor terminating east of Quebec, Canada), which are owned or chartered by such vessel owner, or for which such owner acts as agent, plus (2) the total gross tonnage of all such vessels owned or chartered by any person affiliated with such vessel owner, or for which such affiliated person acts as agent, is comprised of vessels registered under the laws of the United States.

(c) For the purpose of subdivision (b)—

(1) Two or more corporations or associations shall be held to be affiliated if one corporation or association owns directly, or controls through closely affiliated interests or by a nominee or nominees, 50 per centum or more of the outstanding voting stock or voting power of the other, and owns directly, or through closely affiliated interests or by a nominee or nominees, 80 per centum or more of all the outstanding stock of or interest in the other; or if 50 per centum or more of the outstanding voting stock or voting power of two or more corporations or associations is owned directly, or controlled through closely affiliated interests, or by a nominee or nominees, by the same interests, and 80 per centum or more of all the outstanding stock of or interest in such corporations or associations is owned directly, or through closely affiliated interests or by a nominee or nominees, by the same interests;

(2) An individual or partnership shall be held to be affiliated with a corporation or association if 50 per centum or more of the outstanding voting stock or voting power of such corporation or association is owned directly, or controlled through closely affiliated interests or by a nominee or nominees, by the individual or partnership, and 80 per centum or more of all the outstanding stock of or interest in the corporation or association is owned directly, or through closely affiliated interests or by a nominee or nominees, by the individual or partnership.

Generated on 2024-09-12 11:26 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

(d) The board may suspend from time to time the provisions of subdivision (b) in respect to a power-driven vessel of a particular type or kind, which any person desires to own or charter, if, in the opinion of the board, vessels of such type or kind registered, or enrolled and licensed, under the laws of the United States are not reasonably available for the purposes desired. Any vessel in respect to which such suspension is made, shall not be counted in computing gross tonnage for the purposes of subdivision (b).

INCREASE AND DECREASE OF COMPENSATION

SEC. 410. (a) Whenever the board determines that in order to promote the welfare of the United States, the operation of vessels in any particular service, or of any particular type and kind, is desirable and necessary, and that the rate of compensation authorized under section 404 is insufficient to induce the operation of vessels in such service, or of such type and kind, the board in making the contract for compensation may provide therein for the increase of the rate of compensation authorized in respect to such vessel under said section, to such an extent as it deems necessary to procure the establishment and maintenance of such service and the operation of vessels in such service, or the operation of vessels of such type and kind; but the rate of compensation as so increased shall not exceed twice the rate authorized by said section. As used in this subdivision and in section 411 the term "service" includes the route on which the vessel operates, the frequency of sailings, and the speed which she maintains.

(b) Whenever the board determines that the rate of compensation authorized under section 404 is excessive under the special circumstances of any particular case, it shall, in making the contract for compensation, provide therein for the decrease of the rate of compensation to such an extent as it deems advisable.

(c) After the making of the contract of compensation the board may, with the consent of the other party thereto, decrease or, within the limit provided by subdivision (a), increase, the rate of compensation to be paid.

(d) No increase or decrease shall be made under the provisions of this section unless such increase or decrease is specifically authorized by the board upon the affirmative vote of not less than five members, and unless such vote and a full statement of the reasons for the increase or decrease are spread upon the minutes of the board.

MAINTENANCE OF SERVICE OR ROUTE

SEC. 411. (a) The contract for compensation in respect to any vessel may provide that the vessel shall be operated in a particular service (1) if the rate of compensation is based thereon, and (2) if the contract also provides a different rate of compensation to be paid in respect to any period of time after the obligation of the owner to operate the vessel in such service has been terminated as provided in subdivision (b).

(b) If the contract provides for the operation of the vessel in a particular service the obligation of the owner to so operate the vessel may be terminated upon six months' written notice to the board. Upon the failure of the owner to operate the vessel in such service (act of God and restraint of princes excepted) before his obligation has terminated, then, (1) all rights to compensation earned since the last time for payment provided in the contract may, at the option of the board, be forfeited, and (2) the board may terminate the entire contract.

REQUISITION OF COMPENSATED VESSELS

SEC. 412. Any vessel in respect to which a contract for compensation is made, may, at any time during the period for which the contract is made, be taken and purchased or used by the United States for national defense or during any national emergency declared by proclamation of the President. In such event the owner shall be paid the fair actual value of the vessel at the time of taking, or paid fair compensation for her use based upon such fair actual value; but in neither case shall such fair actual value be enhanced by the causes necessitating the taking. In the case of a vessel taken and used, but not purchased, the vessel shall be restored to the owner in a condition at least as good as when taken, less reasonable wear and tear, or the owner shall be paid an amount for reconditioning sufficient to place the vessel in such condition. The owner shall not be paid for any consequential damages arising from such taking and purchase or use. If there is a disagreement between the United States and the owner of the vessel as to the fair actual value, fair compensation, or amount for reconditioning, such value, compensation, or amount shall be determined by arbitration, one of the arbitrators to be selected by the President, one by the owner of the vessel, and the third by the two thus selected, or, if they can not agree, by the Chief Justice of the United States.

REPAIRS, RENEWALS, AND RECONDITIONING OF COMPENSATED VESSELS

SEC. 413. All repairs, renewals, or reconditioning of any vessel in respect to which a contract for compensation is made, or of the machinery or equipment of the vessel, shall be done in a port in the United States, its Territories or possessions, or the Canal Zone; except that repairs or renewals may be made in a foreign port, if the repairs or renewals are essential to the safety of the vessel, its passengers, crew, or cargo, or are made to a vessel operating exclusively between foreign ports and entitled to compensation solely by reason of the provisions of clause (2) of subdivision (a) of section 408. The board shall refuse to pay any person who fails to perform his obligations under this section, such amount of compensation as the board may determine.

CARRIAGE OF MAILS BY COMPENSATED VESSELS

SEC. 414. (a) A vessel in respect to which a contract for compensation is made, shall, whether or not such vessel is built in the United States, transport free for the whole or any part of any voyage which the vessel actually makes or is required under the contract to make, mail matter of any kind, except parcel post, in such amounts as the Postmaster General may require. Such transportation shall be subject to the provisions of law and regulations made thereunder (including the imposition by the Postmaster General of fines and penalties for delays and irregularities in the performance of service) pertaining to the conveyance of the mails.

(b) The rights of any person under law or any contract made thereunder, for compensation in respect to any vessel for the transportation by such vessel of mails of any kind, except parcel post, shall be terminated if such person has made a contract for compensation under this title in respect to such vessel. Nothing in this title shall be held to relieve such person from the performance of his obligations under such law or contract.

SALE OF COMPENSATED VESSELS

SEC. 415. If a vessel in respect to which a contract for compensation is made, is sold prior to the expiration of the contract, the compensation shall cease, unless a new contract therefor is made by the board with the purchaser.

SEC. 416. If a contract for compensation has been made with respect to a vessel, any person who purchases such vessel before the expiration of the term for which the contract was made shall be held to take the vessel with notice of, and subject to, the right of the United States to take and purchase or use such vessel as provided in section 412.

REPAYMENT OF COMPENSATION

SEC. 417. (a) When used in this section, the terms "taxable year," "gross income," "net income," and "invested capital" shall have the same meaning as when used in the Revenue Act of 1921.

(b) The owner of a vessel or vessels who has made a contract with the board for compensation in respect thereto shall pay to the United States 50 per centum of the amount by which his net income for the taxable year, attributable to the operations of such vessels, exceeds 10 per centum of his invested capital for such year attributable to such vessels; but in no case shall the amount so to be paid exceed the amount of compensation earned in respect to such vessels during the taxable year under a contract made under this title by the owner.

(c) In computing the gross income attributable to the operations of the vessels there shall be included the amount of compensation earned under this title in respect to the vessels during the taxable year. In computing the net income attributable to the operations of the vessels there shall be deducted from gross income a reasonable amount, determined by the board and certified by it to the Commissioner of Internal Revenue, as representing the fair value of the products, services, or facilities furnished by the owner of the vessels in connection with the operations of the vessels. There shall not be allowed as a deduction in computing the net income attributable to the operations of the vessels the deduction provided in section 265 of the Revenue Act of 1921 as amended by this Act.

(d) If the owner of the vessels uses them in whole or in part for the transportation of his own property, his gross income attributable to the operations of the vessels in transporting such property shall be considered to be such amount as is determined by the board, and certified by it to the Commissioner of Internal Revenue, as representing the fair value of the services performed by the vessels in transporting such property.

(e) If the owner of the vessels is an individual, a partnership, or an estate or trust, the invested capital shall be determined under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, so as to equal, as nearly as may be practicable, the invested capital that would be allowable to such owner if a corporation.

(f) For the purpose of making an accurate distribution or apportionment of profits, income, deductions, or invested capital, in computing net income and invested capital for the taxable year, among two or more trades or businesses (whether incorporated or unincorporated, or whether or not organized or created in the United States) controlled directly or indirectly by the same interests, the Commissioner of Internal Revenue may consolidate the accounts of such trades or businesses in any of the following cases:

(1) If the person conducting one of such trades or businesses in dealing with the person conducting another, bought from or sold to the other person during the taxable year products, services or facilities at prices above or below the current market price, thus effecting an artificial distribution of profits;

(2) If one such person in any way so arranged his financial relations with another such person during the taxable year as to assign to either a disproportionate share of net income or invested capital; or

(3) Where for any reason it appears to the Commissioner of Internal Revenue that the net income or invested capital attributable to the vessels as shown by the return of the owner does not fairly reflect the actual or true net income or invested capital of the owner.

(g) Every person liable for the payment provided for in subdivision (b) shall make, at the time and in the manner provided by law for making his income-tax return, a return, in such form as may be prescribed by the Commissioner of Internal Revenue, stating his net income attributable to the operations of the vessels, his invested capital attributable to the vessels, and any other information relating to the determination of the amount payable under this section, which may be required by the Commissioner. A copy of such return, together with all schedules and data submitted therewith, shall be transmitted to the board at the same time that the return is filed.

(h) The entire amount for which the owner of the vessels is liable under this section shall be due and payable at the same time and in the same manner, and shall be collected in the same manner, as the first installment of income tax imposed by law.

(i) For the purposes of this section the amount of compensation earned in respect to the vessels during the taxable year shall be determined by the board and certified by it to the Commissioner of Internal Revenue.

(j) Amounts paid under this section shall be covered into the Treasury to the credit of the Merchant Marine Fund created by section 402. Any refunds due on account of overpayment shall be paid out of such fund on vouchers approved by the Commissioner of Internal Revenue and countersigned by the chairman of the board.

(k) The provisions of Titles I, II, III, and XIII of the Revenue Act of 1921, including penal and other provisions relating to the assessment, collection, remission, or refunding of income and excess-profits taxes imposed by Act of Congress, and the provisions of any other internal-revenue law of the United States relating to the assessment, collection, remission, or refunding of such taxes, shall, so far as practicable, extend and be applicable to the determination, collection, remission, or refunding of the payments provided for in this section.

(l) The Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall make rules and regulations for the enforcement of the provisions of this section, and shall have charge of the administration of this section.

OBLIGATION OF VESSEL OWNER UNDER CONTRACT FOR COMPENSATION

SEC. 418. (a) The board shall provide in every contract for compensation with any person, that such person agrees to accept and comply with the provisions of sections 412, 413, 414, 415, and 417. Whether or not the contract does so provide, such person shall be held to have so agreed.

(b) Any contract for compensation with any person may be canceled by him at any time without the consent of the board; but the cancellation shall not relieve him of his obligations under sections 412 and 417, or of any obligation into which he may have entered, pursuant to the provisions of section 411, to operate the vessel in a particular service.

(c) The board shall provide in the contract no terms or conditions except those which are (1) specified in subdivision (a) or in section 411, or (2) necessary to carry out the provisions of sections 411, 412, 413, 414, 415, and 417, or (3) necessary to the ascertainment and determination of the amount of compensation, at the rate fixed in the contract, which under the provisions of this title is properly payable.

FINAL DETERMINATION OF AMOUNT OF COMPENSATION

SEC. 419. The determination of the board as to the amount of compensation to which any person is entitled under the provisions of this title, shall not be subject to review by the General Accounting Office.

TITLE V—ARMY AND NAVY TRANSPORTS

SEC. 501. Whenever in the judgment of the President adequate transportation facilities to meet any or all of the needs of the Army, Navy, or Marine Corps are afforded by vessels registered, or enrolled and licensed, under the laws of the United States, he may direct the discontinuance in whole or in part of the transport service of either the Army or the Navy and transfer to the board or place out of commission any of the vessels now or hereafter engaged in either of such services. Whenever such dis-

Generated on 2024-09-12 11:21 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

position is made the Secretary of War and the Secretary of the Navy respectively are authorized and directed to enter into contracts with owners of vessels registered, or enrolled and licensed, under the laws of the United States, for such transportation as may be required by the Army, the Navy, or the Marine Corps, respectively. Such contracts may be for a term of ten years. The board shall furnish whatever assistance may be necessary in the making of such contracts. There is hereby authorized to be appropriated such sums as are necessary to meet the payments required under such contracts.

TITLE VI—PROVISIONS RELATING TO RAIL AND WATER TRANSPORTATION

DEFINITIONS

SEC. 601. As used in this title the term "commission" means the Interstate Commerce Commission.

INTERRELATIONS OF RAIL AND WATER TRAFFIC

SEC. 602. (a) It is hereby declared to be the policy of Congress to promote, encourage, and develop water transportation, service, and facilities in connection with the commerce of the United States, and to foster and preserve in full vigor both rail and water transportation, and the board and the commission are hereby severally authorized, empowered, and directed to co-operate to that end.

(b) The board and the commission are authorized and directed to create a joint board, selected from among their members, officers, and employees, to study the conditions and interrelations of rail and water traffic, and the principles and methods essential to accomplishing the policy declared in subdivision (a).

(c) The joint board shall appoint a secretary who shall keep minutes of its meetings, which minutes shall be furnished to the members of the board and of the commission. The joint board shall hold regular semi-monthly and such additional meetings as may be necessary to transact properly its business.

(d) The joint board shall formulate and make such recommendations to the board and the commission, not inconsistent with law, pertaining to the interrelations of rail and water traffic, as it deems necessary to accomplish the policy declared in subdivision (a). The board shall make effective, by such means as are granted it by law, any such recommendation upon any matter within its jurisdiction, if such recommendation is approved by the board. The commission shall have a like duty as to any such recommendation upon any matter within its jurisdiction.

(e) None of the provisions of this section shall be construed to affect the power or jurisdiction of the commission, or to confer upon the board concurrent power or jurisdiction over any matter within the power or jurisdiction of the commission.

EXPORT BILLS OF LADING

SEC. 603. Paragraph (4) of section 25 of the Interstate Commerce Act, as amended, is amended by adding at the end thereof a new sentence to read as follows: "In making rules and regulations prescribing the form of such through bills of lading, the commission shall adopt as the portion thereof governing the carriage of goods by water in foreign commerce such form as may be certified to the commission by the United States Shipping Board for such purpose."

RAIL-OWNED WATER LINES

SEC. 604. Paragraph (9) of section 5 of the Interstate Commerce Act, as amended, is amended by striking out the period at the end thereof and inserting in lieu thereof a colon and the following: "*Provided*, That the foregoing provisions of this paragraph shall not apply in any case where such common carrier by water or such vessel is engaged exclusively (a) in trade (other than with foreign contiguous territory) not included in the coastwise trade, or (b) in trade between ports in the United States and ports in the Philippine Islands."

AGREEMENTS BETWEEN CARRIERS AFFECTING WATER TRANSPORTATION

SEC. 605. Section 15 of the Shipping Act, 1916, is amended to read as follows:

"SEC. 15. (a) That every common carrier by water, or other person subject to this Act, shall file immediately with the board a true copy, or, if oral, a true and complete memorandum, of every agreement with another such carrier or other person subject to this Act, or modification or cancellation thereof, to which it may be a party or conform in whole or in part, fixing or regulating transportation rates or fares; giving or receiving special rates, accommodations, or other special privileges or advantages; controlling, regulating, preventing, or destroying competition; pooling or apportioning earnings, losses, or traffic; allotting ports or restricting or otherwise regulating the number and character of sailings between ports; limiting or regulating in any way the volume or character of freight or passenger traffic to be carried; providing warehousing, docking, or other terminal facilities; providing that the one carrier shall act in any manner as agent or representative of the other carrier; or in any manner providing for an exclusive, preferential, or co-operating working arrangement.

"(b) Every common carrier by water shall file immediately with the board a true copy, or, if oral, a true and complete memorandum, of every agreement with a common carrier by railroad subject to the provisions of the Interstate Commerce Act, as amended, or modification or cancellation thereof, to which it may be a party or conform in whole or in part, relating to the interchange of freight or passengers, or the making of joint or through rates, or providing warehousing, docking, or other terminal facilities, or providing that the one carrier shall act in any manner as agent or representative of the other carrier, or in any manner providing for a co-operative working arrangement between the two carriers. In all such cases the common carrier by railroad shall also have a like duty. The provisions of this subdivision shall apply only to agreements relating to passengers or property transported or to be transported to or from a foreign country or the Philippine Islands from or to a port or other place in the United States.

"(c) The term 'agreement' as used in this section includes understandings, conferences, and other arrangements.

"(d) The board may by order disapprove, cancel, or modify any agreement, or any modification or cancellation thereof, whether or not previously approved by it, that it finds to be unjustly discriminatory or unfair as between carriers, shippers, exporters, importers, or ports, or between exporters from the United States and their foreign competitors, or to operate to the detriment of the commerce of the United States, or to be in violation of law or to be otherwise detrimental to the interests and welfare of the United States, and shall approve all other agreements, modifications or cancellations.

"(e) Agreements existing at the time of the enactment of the Merchant Marine Act, 1922, shall be lawful until disapproved by the board. It shall be unlawful to carry out any agreement or any portion thereof, disapproved by the board.

"(f) All agreements, modifications, or cancellations, made after the enactment of the Merchant Marine Act, 1922, shall be lawful only when and as long as approved by the board, and before approval or after disapproval it shall be unlawful to carry out in whole or in part, directly or indirectly, any such agreement, modification, or cancellation.

"(g) Every agreement, modification, or cancellation, lawful under this section, shall be excepted from the provisions of the Act entitled 'An Act to protect trade and commerce against unlawful restraints and monopolies,' approved July 2, 1890, and amendments thereof and Acts supplementary thereto, and the provisions of sections 73 to 77, both inclusive, of the Act entitled 'An Act to reduce taxation, to provide revenue for the Government, and for other purposes,' approved August 27, 1894, and amendments thereof and Acts supplementary thereto.

"(h) Whoever violates any provision of this section shall be liable to a penalty of $1,000 for each day such violation continues, to be recovered by the United States in a civil action."

SEC. 606. Paragraph (d) of paragraph (13) of section 6 of the Interstate Commerce Act, as amended, is amended to read as follows:

"(d) If any carrier by railroad subject to this Act enters into arrangements lawful under section 15 of the Shipping Act, 1916, as amended, with any carrier by water operating from a port in the United States to a foreign country, for the handling of through business between interior points of the United States and such foreign country, the commission may require such carrier by railroad to enter into similar arrangements with any or all other carriers by water operating from such port to the same foreign country, but such arrangements shall be subject to the provisions of section 15 of the Shipping Act, 1916, as amended."

JOINT OR PROPORTIONAL RATES

SEC. 607. Section 28 of the Merchant Marine Act, 1920, is amended to read as follows:

"SEC. 28. (a) That no common carrier shall charge, collect, or receive, for transportation subject to the Interstate Commerce Act, as amended, of passengers or property, under any joint rate, fare, or charge, or under any export, import, or other proportional rate, fare, or charge, which is based in whole or in part on the fact that the passengers or property affected thereby are to be transported to, or have been transported from, any port in a possession or dependency of the United States, or in a foreign country, by a carrier by water in foreign commerce, any lower rate, fare, or charge than that charged, collected, or received by it for the transportation of passengers, or of a like kind of property, for the same distance, in the same direction, and over the same route, in connection with commerce wholly within the United States, unless the vessel so transporting such passengers or property is, or unless it was at the time of such transportation by water, documented under the laws of the United States.

"(b) Whenever the board is of the opinion, however, that adequate shipping facilities to or from any port in a possession or dependency of the United States or a foreign country are not afforded by vessels so documented, it shall certify this fact to the Interstate Commerce Commission, and the commission shall, by order, suspend temporarily the operation of the provisions of this section with respect to the rates, fares, and charges for the transportation by rail of passengers and property transported from, or to be transported to, such ports.

"(c) Such suspension of operation of the provisions of this section shall be terminated upon 30 days' notice, given in accordance with the requirements of section 6 of the Interstate Commerce Act, as amended, by order of the commission whenever the board is of the opinion that adequate shipping facilities by such vessels to or from such ports are afforded and so certifies to the commission.

"(d) Whenever the board and the commission are both of opinion, and certify, that putting into effect or keeping in effect the provisions of this section will result in unjust discrimination between ports of the United States on commerce accustomed to move through such ports or in materially changing the channels of transportation within the United States, or in unduly congesting one or more of the ports of the United States, the commission shall, by order, suspend the operation of said provisions until such time as it and the board reach a contrary conclusion in the premises, whereupon such suspension shall, by order, be terminated by the commission upon 30 days' notice as hereinbefore provided for the termination of other suspensions."

TITLE VII—MISCELLANEOUS PROVISIONS

TRANSPORTATION BY WATER OF GOVERNMENT OFFICIALS

SEC. 701. Any officer, employee, or agent of the United States, including legislative, judicial, diplomatic, and consular officers, and officers serving in the military or naval forces of the United States, travelling by water, when the expense of such passage is chargeable directly or indirectly to the United States, shall, when practicable travel in a public vessel of the United States or a vessel registered, or enrolled and licensed, under the laws of the United States. When passage in such a vessel is not practicable, the voyage may be made in a vessel under a foreign flag only when specifically ordered by the head of the department or other Government establishment concerned or upon order specifically approved by such head of department or other Government establishment, who shall as promptly as possible report each such voyage made in a vessel under a foreign flag, together with the reasons showing necessity therefor, to the board.

(b) Any person subject to the provisions of subdivision (a) who fails to comply therewith in respect to the passage taken shall not be reimbursed for such passage money, or shall be surcharged in his accounts with the United States with the amount thereof, as the case may require.

TRANSPORTATION OF GOVERNMENT SUPPLIES

SEC. 702. All goods, wares, merchandise and material of every nature (including supplies for the military or naval forces of the United States) belonging to or intended for the United States, transported by water, shall when practicable be shipped in a public vessel of the United States or a vessel registered, or enrolled and licensed, under the laws of the United States. When shipment in such a vessel is not practicable and the shipment is made in a vessel under a foreign flag, it shall be the duty of the officer, employee or agent of the United States authorizing or making the shipment, within one month thereafter, to mail a written notice to the board, stating the ports of departure and destination, the date, the name of the vessel, and the reason why the shipment was not made in a public vessel or a vessel registered, or enrolled and licensed, under the laws of the United States.

REGULATIONS

SEC. 703. Except where otherwise specifically provided in this Act, the board may make such regulations in respect to matters placed under its jurisdiction by this Act as it deems necessary in order to make effective the intent and purposes of this Act.

SEPARABILITY

SEC. 704. If any provision of this Act or the application thereof to any person or circumstance is held invalid the validity of the remainder of the Act and of the application thereof to other persons and circumstances, shall not be affected thereby.

SHORT TITLE

SEC. 705. This Act may be cited as the "Merchant Marine Act, 1922."

Generated on 2024-09-12 11:23 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Developments in Marine Insurance

Restrictive Clauses Troublesome—Hague Rules—More Board Vessels Rated—Rules for Inland Craft—Syndicates Praised

By "Bordereaux"

FROM the viewpoint of the underwriter there is a decided danger in the use of limiting clauses that restrict the liability of the carrier. Considerable interest has recently been taken in a clause used in connection with shipments of cotton and which has been inserted in ocean bills of lading by steamship companies operating out of New Orleans. It reads as follows:

"All risks of fire, flood, high water, rain, collapse of wharf, or any other causes not happening through the fault or negligence of the owner, master, or agent of the vessel occurring prior to actual loading aboard vessel, to be borne by the owner of the goods whether or not actually receipted for by vessel or agent."

Underwriters insist that carriers are unquestionably beyond their rights in making use of such a clause, as Section I of the Harter Act prohibits the use of clauses limiting the liability of the carriers with respect to the care and custody of cargoes and, if the damage to the cotton is in any way due to the fault of the carrier, even though the floods are partially responsible, the carriers should not be allowed to evade their liability by hiding behind such a restriction. It will readily be seen that the question of the negligence of the carrier could not be subsequently raised in court, if the shipper could be shown to have had knowledge of this clause and so to be bound by it.

Assureds, holding open policies on cotton, have been advised by their underwriters that this clause is not only a violation of the contract between carrier and shipper but that it is in violation of the policy clause which reads, "Warranted by the assured that they will not relieve any carrier or other bailee from any statutory or common law liability or duty." It is of prime importance for the shipper thoroughly to understand the seriousness of this contract obligation, for such a breach of warranty renders the policy voidable at the option of the underwriter.

Furthermore, there is no occasion for the carrier to employ such a clause for his own protection as he has a perfectly sound defense in event of a claim for flood damage; under the common law he cannot be held liable for damage by floods, as it is one of the so-called acts of God, nor is he made liable by statute—hence the suspicion of the underwriters that there was some ulterior purpose behind the introduction of the obnoxious clause.

The bailee clauses in marine insurance policies are broad in their provisions, but their intent has been to prevent the carrier from taking advantage of the shipper's insurance and thereby limiting the legal liability of the former. The trouble with some bailee clauses is that they are so restrictive that, if construed technically, the assured would have no coverage whatever. Most underwriters, however, follow a bailee clause with a saving clause wherein the underwriter agrees to pay the claim of the assured, if caused by an insured peril, provided the assured is able to collect the same from the carrier.

The Hague Rules

UNQUALIFIED endorsement of the Hague Rules, 1921, has made little progress in this country of late. They were let down by the National Foreign Trade Convention with the mildest kind of an acknowledgment and a suggestion of further study, while the United States Chamber of Commerce contented itself with a qualified endorsement of them as "a step in advance" and a request of Congress to enact legislation for the rules "with such interpretations as may be deemed necessary." Opponents of the rules insist that they are obscure and will have to be clarified before they can be endorsed; and, further, that care must be taken that international uniformity be not secured at the price of national interests. This point was carefully emphasized in the resolution adopted at the recent annual meeting of the National Association of Manufacturers, in New York, when the rules were approved as "a practical step forward," to which was added the significant qualification, "but not as a final substitute for highly desirable national legislation fortified by international agreements."

In his address before the Ninth National Foreign Trade Convention, President Benjamin Rush, of the Insurance Company of North America, observed:

"I am not in favor of the Hague Rules in their present form. They are defective in that they deal only with the responsibility of the shipowner while the goods are on board of his ship, and fail to deal with his responsibility while the goods are in his custody but not actually on the ship. They do not apply to deck cargoes . . . . When properly amended, as indicated above, they will be a step in advance over the conditions now prevailing, but they still fall far short of the full protection to which innocent cargo is entitled at the hands of the shipowner. They will, therefore, be in the nature of a compromise between conflicting interests and they should not therefore cause any cessation in the efforts made by merchants and shippers to reimpose upon carriers full responsibility for losses resulting by their negligence or the negligence of their servants."

More Board Vessels Rated

MARINE underwriters announce progress in their cooperative work in connection with the Shipping Board in the matter of readjusting steamer classifications for cargo rating purposes. All Board vessels of the twin-screw passenger type, not over 20 years old, are to be recommended for first class liner classifications. These proposals refer to vessels operated by four lines—the United States Lines, Pacific Mail, Pacific Steamship Company and the Munson Line. The daily papers were incorrect in announcing that all Board vessels would receive preferential classifications. This is not the case, nor that all twin-screw passenger vessels henceforth brought into use will be so classed. The steamship lines above mentioned are operating several former German owned steamers more than 20 years of age which will not benefit by the underwriters' recommendations.

Writing the "Majestic" Class

IT will readily be credited that the great interest aroused at the port of New York by the first appearance of the *Majestic*, the largest vessel afloat, was vividly shared by marine underwriters. Much sage council was passed along by the veterans of the profession anent the hazards that enter into the insuring of such tremendous ships as this. The laymen might be justified in concluding that a vessel so structurally perfect as the *Majestic* would offer the most

Generated on 2024-09-12 11:48 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

attractive kind of a risk for the insurer, and yet the average underwriter would much prefer a smaller boat. The very size of the *Majestic* makes her difficult to handle and this is of great importance to the underwriter when a vessel is entering or sailing from a port. Congested shipping conditions and narrow channels in the majority of the great ports make the danger of stranding and collision very real indeed. Vessels of the draft of the *Majestic* must come into New York on high tide, which means that, if such a ship is delayed by fog or other causes and arrives off Ambrose Channel and is compelled to anchor awaiting high tide or clearing of the fog, she may very easily drift on the shoals. When the *Majestic* encountered the swift tide off Quarantine she swung around at right angles, partially blocking the channel, which is only 1,800 feet wide at this point. It took skillful maneuvering to get her around so as to give sea room for the *Mauretania* to get by. Not only is the danger of stranding and collision materially increased in the case of large steamers, but the cost involved in getting such a monster off the strand would be decidedly greater than if it were a smaller vessel.

Rules for Inland Craft

RULES governing the construction of river, harbor and canal craft are under preparation by the American Bureau of Shipping, with a view of taking up the classification of the same. A number of vessels of these types have already been classed, and it has been found to be very advantageous to their owners in arranging their insurance on hulls and cargoes. Bureau officials are giving particular attention to the classification of the modern self-propelled barge and of tow barges, in view of the activity on the part of New York authorities in reviving interest in a more extended use of the Barge Canal. The Bureau, which is now located at 50 Broad street, New York, will welcome any suggestions from responsible builders, owners and underwriters with regard to these particular types of vessels, and will give such suggestions the most careful consideration and possibly include them in the forthcoming rules.

Short Policy Revised

THE American Institute of Marine Underwriters is giving consideration to the short form of marine insurance policy that has been the subject of so much discussion and revision during the last three or four months. Suggestions for alterations were received from a number of brokers whose criticism had been invited, and these suggestions have been considered with the result that recommendations for changes were sanctioned and the policy reprinted with the modifications included. It is to be hoped that the Institute will approve the recast document, as such a course would mark an important step toward the policy uniformity and simplicity so eagerly sought by banking and shipping interests. The new policy is intended also for use in insuring shipments to Great Britain, where the courts have ruled that consignees may demand the inclusion of actual policies, instead of the popular certificate, among C.I.F. papers.

"Endicott" Decision Reversed

A GREAT victory has been won by the Greater British Insurance Corporation, Ltd., of England, in the case brought against it by the Peninsular Transportation Company for contesting liability on the loss of the schooner *Charles G. Endicott*. The transportation company won a judgment last November for $5,000 and costs in the Special Term of the Supreme Court after the court had struck out the defendant's answer and given a summary judgment, without trial or consideration of the evidence for the plaintiffs. Appeal was taken to the Appellate Division of the Supreme Court and in an opinion concurred in by the entire court the orders appealed from are reversed, the plaintiff's motion to cut out the answer of the defendant and for judgment is denied, the insurance company's motion to vacate the judgment and for leave to file an amended answer is granted, and the judgment reversed with costs. The case now reverts to the lower court for retrial. The reversal was based both on evidence and on the extraordinary procedure of the court. This is the celebrated case in which after several of the American underwriters had paid their proportion of the loss the British companies contested liability, denying destruction by mines and alleging criminal collusion on the part of the owners in the destruction of the schooner off the coast of Cuba in February of last year.

Syndicates Officially Praised

SWEEPING commendation of the condition and achievements of the American Marine Insurance Syndicates has been accorded in the report of their examination by the New York Insurance Department, just filed. Albert N. Butler, who made the report, states that the Syndicates have accomplished what they were organized for, and pronounces their continued existence as an economic adjunct of the American merchant marine as eminently justified. Of Syndicate "A," which was organized for inspection damage and loss surveys of vessels of all types and classes, the report says that it has established an economical method of handling the operation and has become an important factor in securing repairs at much more reasonable figures than heretofore. It commends the low expense ratio maintained in the work of "B," which, inclusive of taxes and brokerage, reached but 12.44 percent of the earned premium. On account of larger brokerage allowances, the expense ratio of "C" was somewhat higher than that of "B," but even so it was but 21.29 percent of the earned premiums.

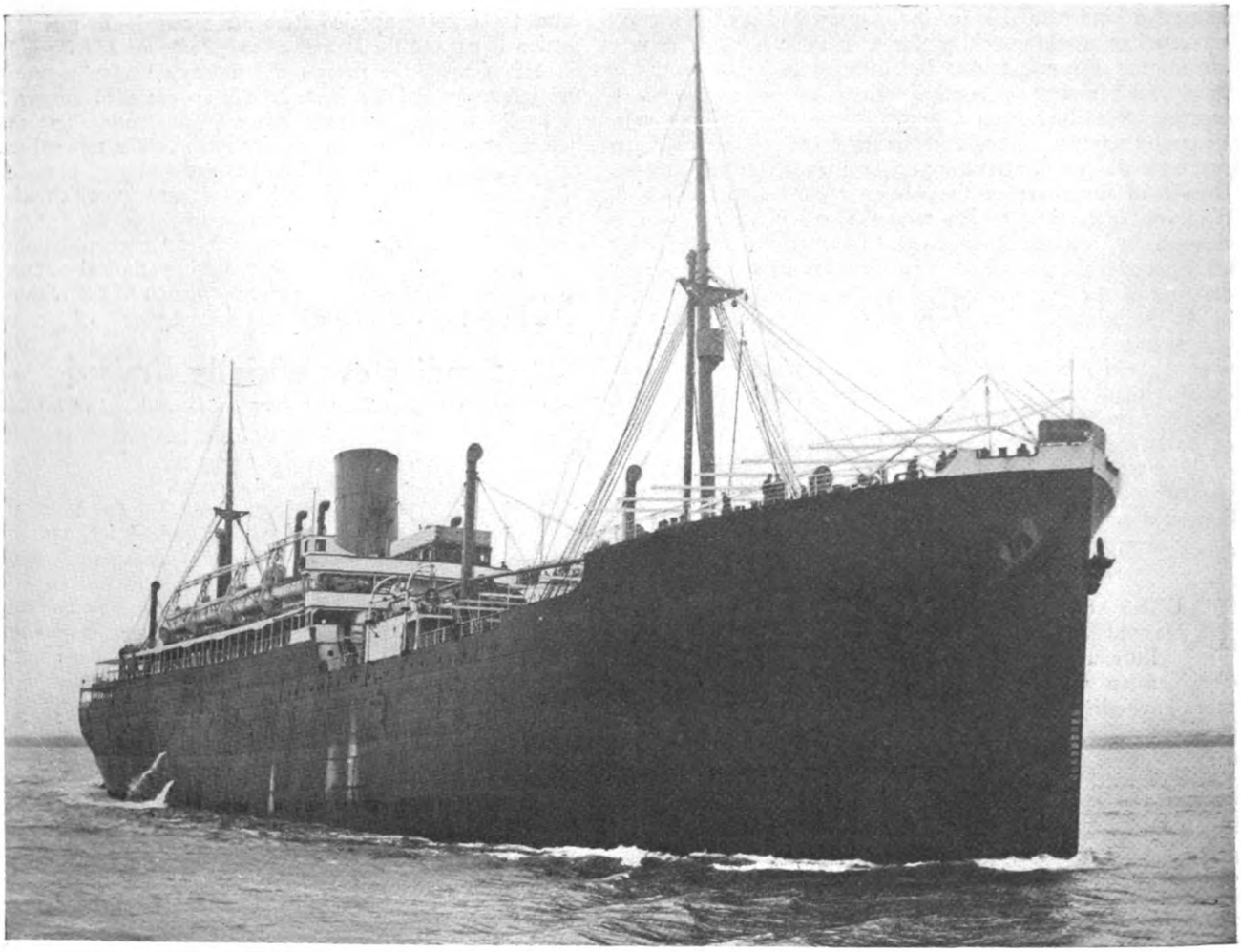
"There can be no doubt," reports Examiner Butler, "that Syndicate 'C' offers for the first time to the American market hull insurance adequate to meet practically all American requirements. The syndicates have, therefore, met the wishes of the Committee on Merchant Marine and Fisheries by providing greater American hull coverage . . . . It is a great convenience to brokers to be able to deal through the syndicates, thus quickly covering the capacity of the American market . . . . Economically, the underwriting syndicates appear to be highly successful. There are numerous necessary and expensive operations formerly duplicated by the various underwriters, that are now co-ordinated under the one head—underwriting, adjusting, surveying, settlements, etc. The expenses of the syndicates have been markedly low. Furthermore, there should be gathered under this one organization a mass of invaluable experience in regard to ships, owners and operators which must ultimately be extremely beneficial to efficient service to the assured and also the American mercantile marine . . . . As regards Syndicate 'A,' this organization may well develop into the powerful institution contemplated by its sponsors . . . . Should the profits indicated in the foregoing statement continue over a considerable period and, if such profits are found ultimately to represent economies effected by the syndicates, reduced rates of insurance to American shipowners should soon follow."

American Farmers and American Ships

(*Continued from page* 412)

France have come back to their home towns and farms with a new realization of what ships and more ships mean in peace and war to America. Those foreign foes of the American merchant marine who protest that all American farmers are opposed to a merchant marine of our own and will help Europe re-clinch her old monopoly of our ocean trade, simply do not know those farmers or their sons!

Generated on 2024-09-12 11:21 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



S. S. Moreton Bay—First of the Australian "Bay" Fleet

New Australian Liner Moreton Bay

Passenger and Cargo Vessel of 23,320 Tons Displacement to Operate Between the United Kingdom and Australia

ONE of the interesting post war developments of intercontinental passenger service is the construction of five combination passenger and freight vessels for operation between the United Kingdom and Australia. These vessels will be operated by the Australian Government Commonwealth Line and will be known as the "Bay" fleet. The *Moreton Bay* is the first of this fleet to be completed, the others being *Hobson's Bay, Jervis Bay, Largs Bay* and *Esperance Bay.*

On account of the long voyages these ships will have to make and the variations of temperature through which they will pass it was necessary to give special consideration to passengers and their comfort and in consequence a high standard of accommodation has been provided which has also been extended to include the crew's quarters and provide a maximum of comfort for them as well as the passengers.

The following particulars of the *Moreton Bay* will also apply to the sister ships.

Length over all	548 feet 9 inches
Length between perpendiculars	530 feet 0 inches
Breadth molded	68 feet 0 inches
Depth, molded, to shelter Deck "B"	43 feet 6 inches
Draft	29 feet 11½ inches
Displacement	23,320 tons
Sea speed in loaded condition	15 knots

The vessel is classed 100 A-1 at Lloyds, shelter deck with freeboard and was also built to satisfy the British Board of Trade requirements for passenger ships and, in addition, to comply with the Australian Navigation Act.

Hull

The new vessels have a forecastle forward and a long bridge amidships. Two pole masts are fitted and one funnel. Including the boat and bridge decks, there are six decks in the depth of the vessel, the upper decks being utilized for passenger accommodation and the lower decks and main holds for cargo.

A special feature of the construction is the large capacity of insulated space provided in numbers 2, 3, 4 and 5 holds and D and E 'tween decks. General cargo will be carried in numbers 1 and 6 holds and the 'tween deck spaces above on D and E decks.

Refrigerated Spaces

The refrigerated compartments are insulated by cork slabs embedded in bitumen and faced with a magnesite cement

Generated on 2024-09-12 11:26 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

which is proof against vermin or damp and preserves air-tightness. These spaces will be utilized for the carriage of frozen meat, butter, eggs, rabbits, fruits, etc. In view of this and the fact that some of these must be carried at higher temperatures than others, the brine distribution is arranged on the three temperature system, by means of which brine for freezing or chilling and for thawing out can be supplied independently to each brine pipe section throughout the ship. Consequently each refrigerated space is controlled independently of all others according to the requirements of the cargo carried.

ACCOMMODATIONS

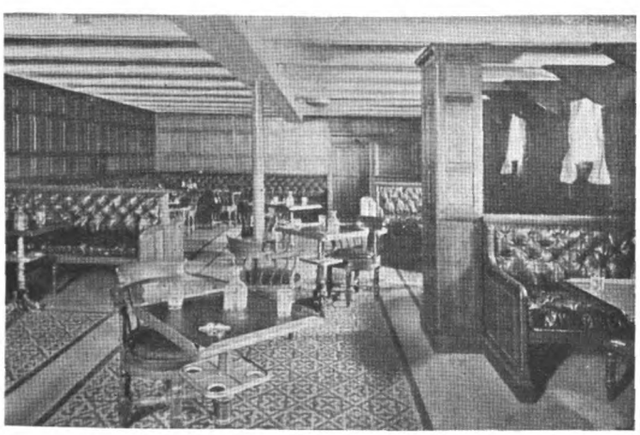
The new "Bay" ships are designed primarily to carry third class passengers but special first class cabins for 12 passengers have been provided on the bridge deck. These cabins are elaborately designed and furnished and each is arranged to include a private bathroom.

Third class accommodations for 720 passengers are provided practically the entire number of which are located on "C" deck. These accommodations are arranged in 2, 4 and 6 berth cabins and in the two foremost and two aftermost compartments the accommodations are portable so that when not required for passengers these spaces may be utilized for cargo. Access is gained to the third class accommodations through entrances erected on the shelter deck which also are fitted with lavatories, bathrooms, etc., for the passengers' use.

The public rooms are located on the shelter deck in way of the bridge superstructure. A large dining room is provided at the forward end and arrangements made for seating 350 passengers at one time. Right aft of the main dining room are arranged the pantries and galleys and directly abaft the galley are located accommodations for stewards, butchers, bakers, cooks, etc. The after end of the bridge enclosure is fitted up with a social hall on the port side and a smoking room on the starboard side, each of these public rooms having an open but protected veranda fitted directly abaft them. All of the public rooms are specially designed to provide for the greatest comfort and entertainment of the passengers, a feature which is most essential on long sea voyages, especially through tropical waters.

On the shelter deck aft, located so as to be completely isolated from all other erections, are hospitals consisting of separate rooms providing for male and female cases or for special cases requiring complete isolation. A special bath-room is provided for each ward and each is equipped along the most modern lines.

The captain's quarters are located forward on the boat deck and aft on the same deck in way of the engine room casing accommodations are provided for the firemen, these latter being arranged in a manner which enables the men to proceed to their work without using the passenger decks.



Third Class Smoking Room

First Class Dining Room

The ship's officers, doctor and purser are berthed on the bridge deck forward and the engineers on the bridge deck aft in way of the engine casing and No. 4 cargo hatch.

The crew is berthed in well ventilated, roomy quarters under the forecastle.

BOILERS

Steam is generated in three double ended and two single ended boilers designed for a working pressure of 220 pounds per square inch and arranged in a single boiler compartment. The boilers are of the multitubular return tube type fitted with smoke tube superheaters and Howden's forced draft.

Arrangements have been made to burn oil fuel but the necessary gear is carried for converting to coal burning should the necessity arise.

MAIN PROPELLING MACHINERY

The main propelling machinery consists of turbines of the Parson's reaction type driving twin screws through double reduction gearing. The installation is rated at a collective shaft horsepower of 9,000 with the propeller revolutions about 90 per minute. The astern power is approximately 63 percent of the full power ahead. The high pressure pinion of the first reduction gearing is driven through a flexible coupling by one stage of impulse blades at the forward end of the high pressure turbine and the low pressure pinion is driven through a flexible coupling by the low pressure turbine. The unit is designed to operate with 100 degrees F. of superheat at the high pressure inlet.

Adjusting blocks of the Michell type are fitted to the turbines.

The reduction gearing is of the helical type, the main gear wheel consisting of a cast iron center portion upon which a heavy forged steel rim is shrunk and first and second reduction pinions or forged nickel steel. Forced lubrication is used for the turbines, shaft bearings and gearing.

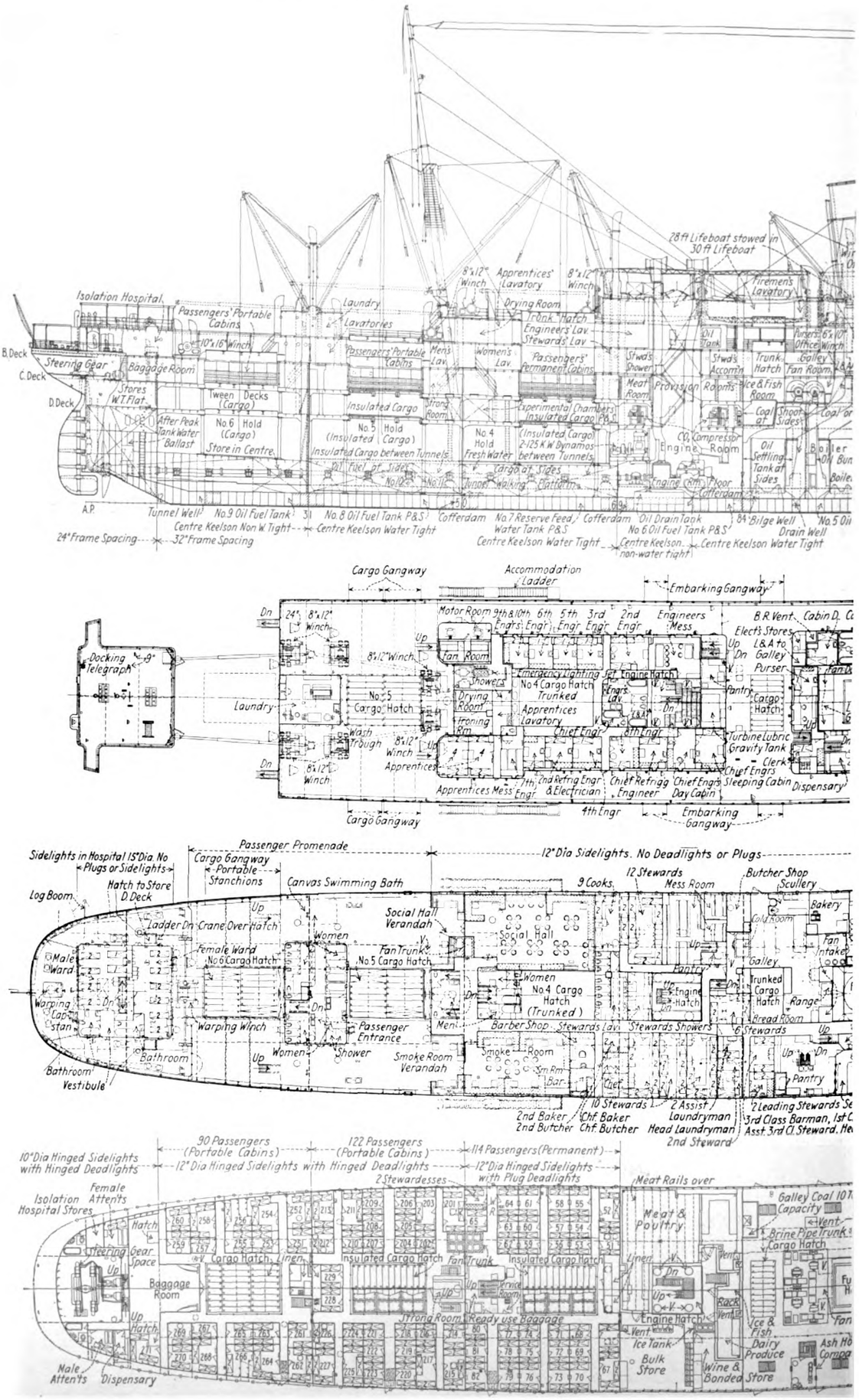
Thrust blocks of the Michell type are fitted adjacent to the reduction gears.

The condensing plant installed is capable of maintaining a vacuum of 28 inches when the engines are operating continuously at full speed with a barometer of 30 inches and sea water at 80 degrees F. The main condensers are of the "Contraflo" type underslung on the low pressure turbines so that the low pressure turbine is always free from drainage water. The vacuum system embodies all the latest improvements for economical and efficient operation in conjunction with the feed heating system. "Contraflo" marine specialties are provided throughout.

The auxiliary condenser is also of the "Contraflo" vacuum type, and the auxiliary feed system is similar to the main system.

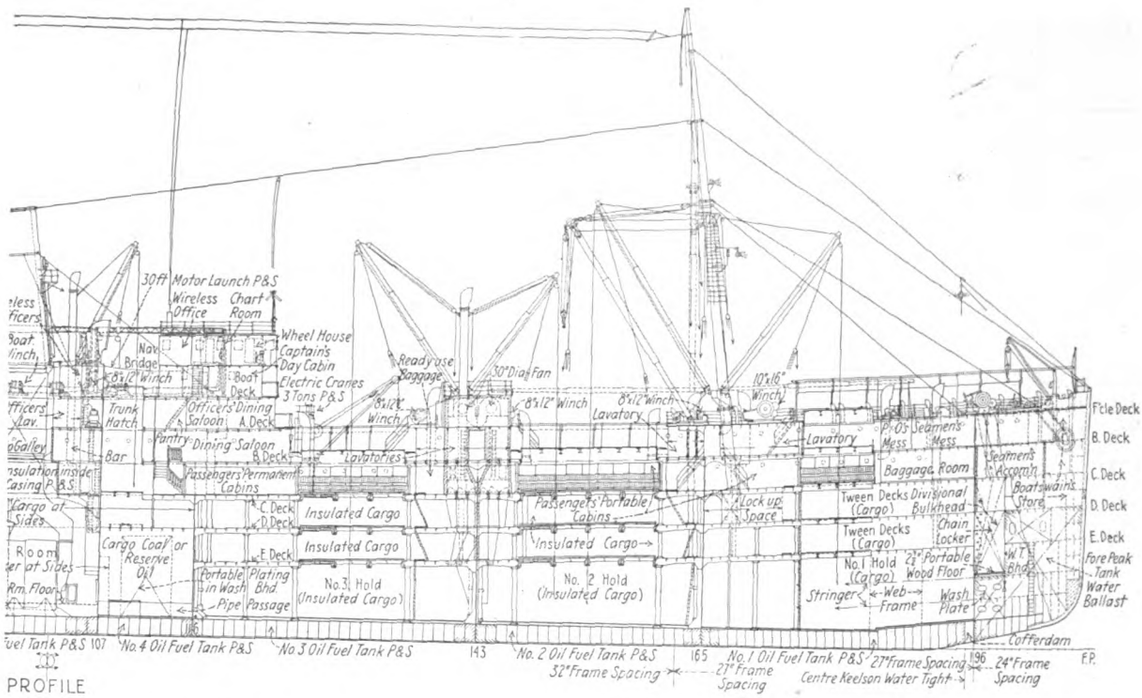
The turbine turning gear is operated by electric motors

Generated on 2024-09-12 11:46 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

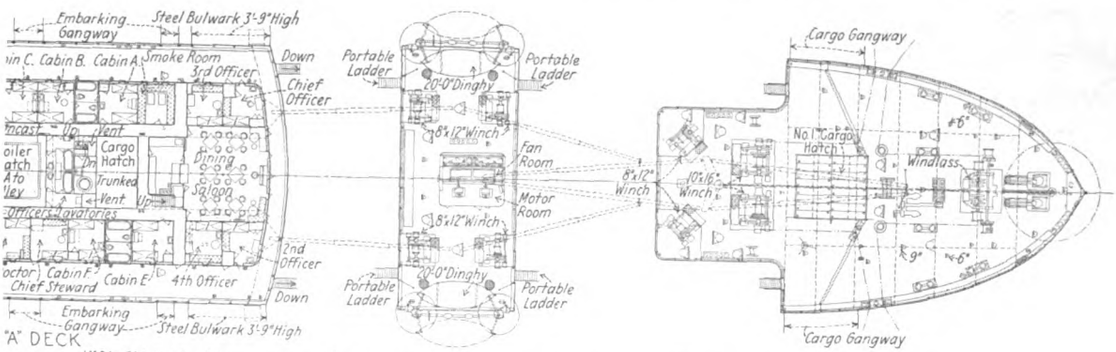


General Arrangement Plans

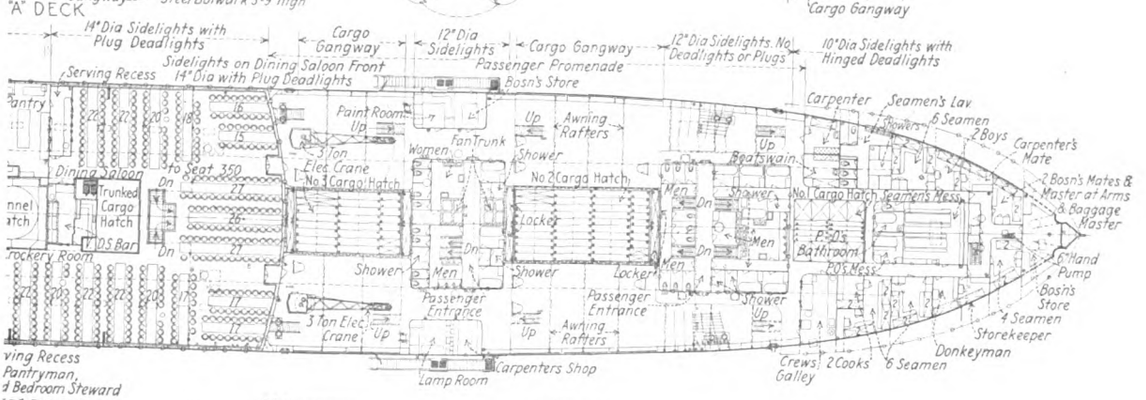
Generated on 2024-09-12 11:27 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



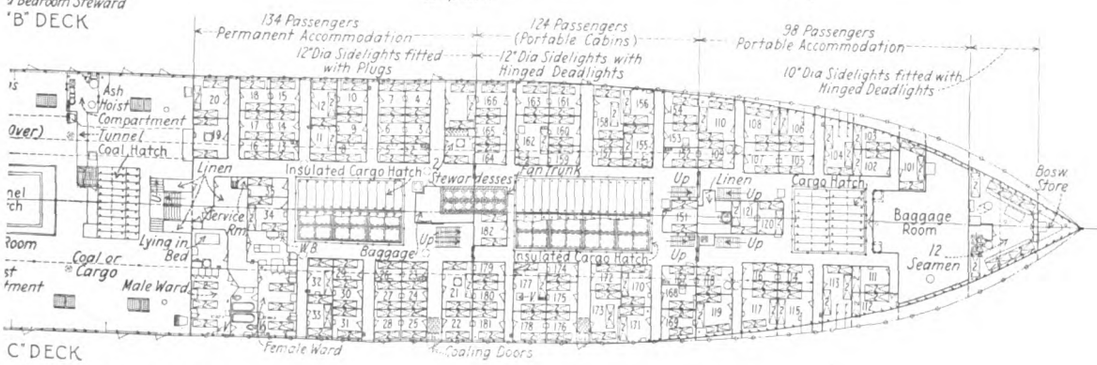
PROFILE



"A" DECK



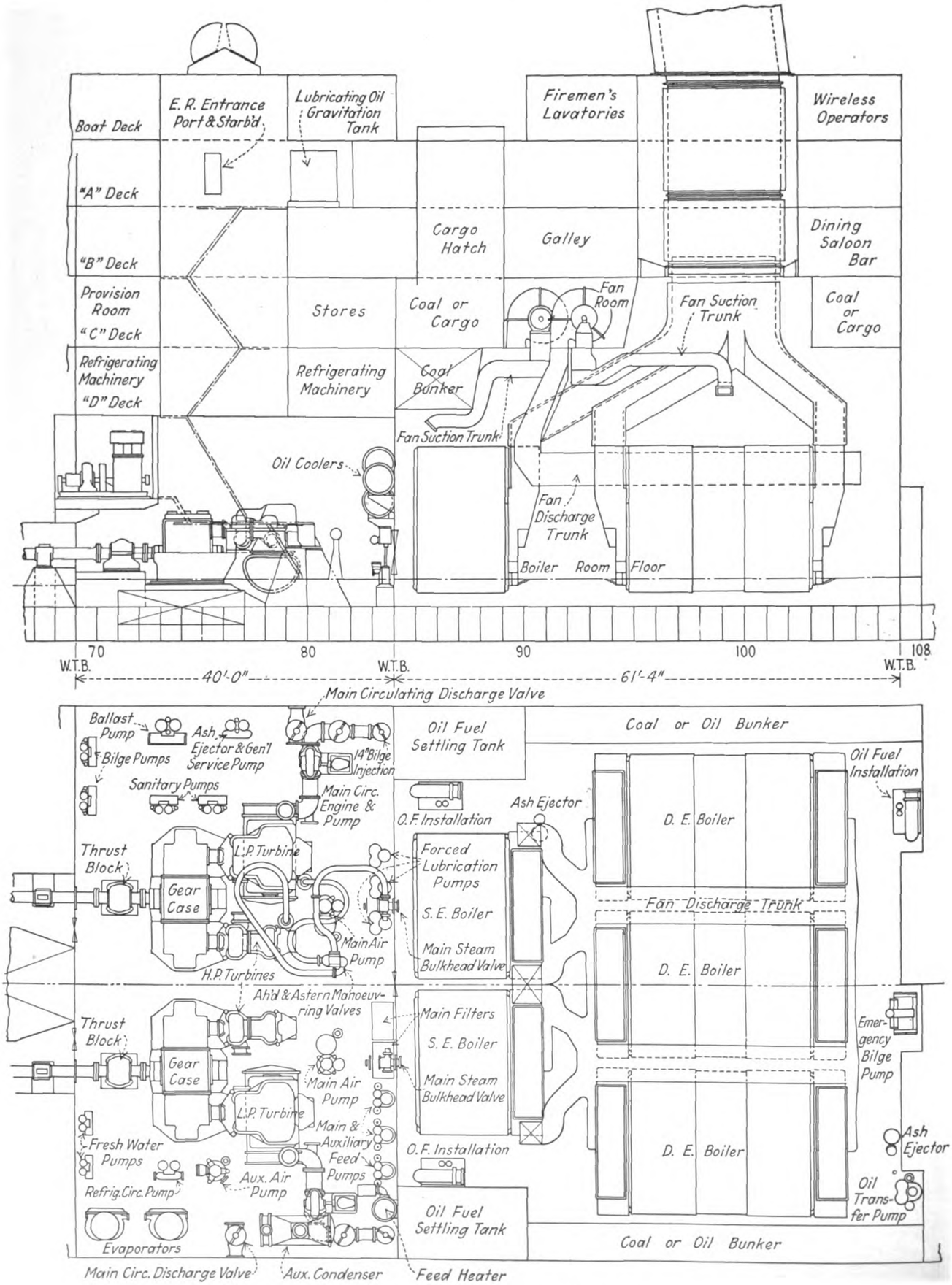
"B" DECK



C" DECK

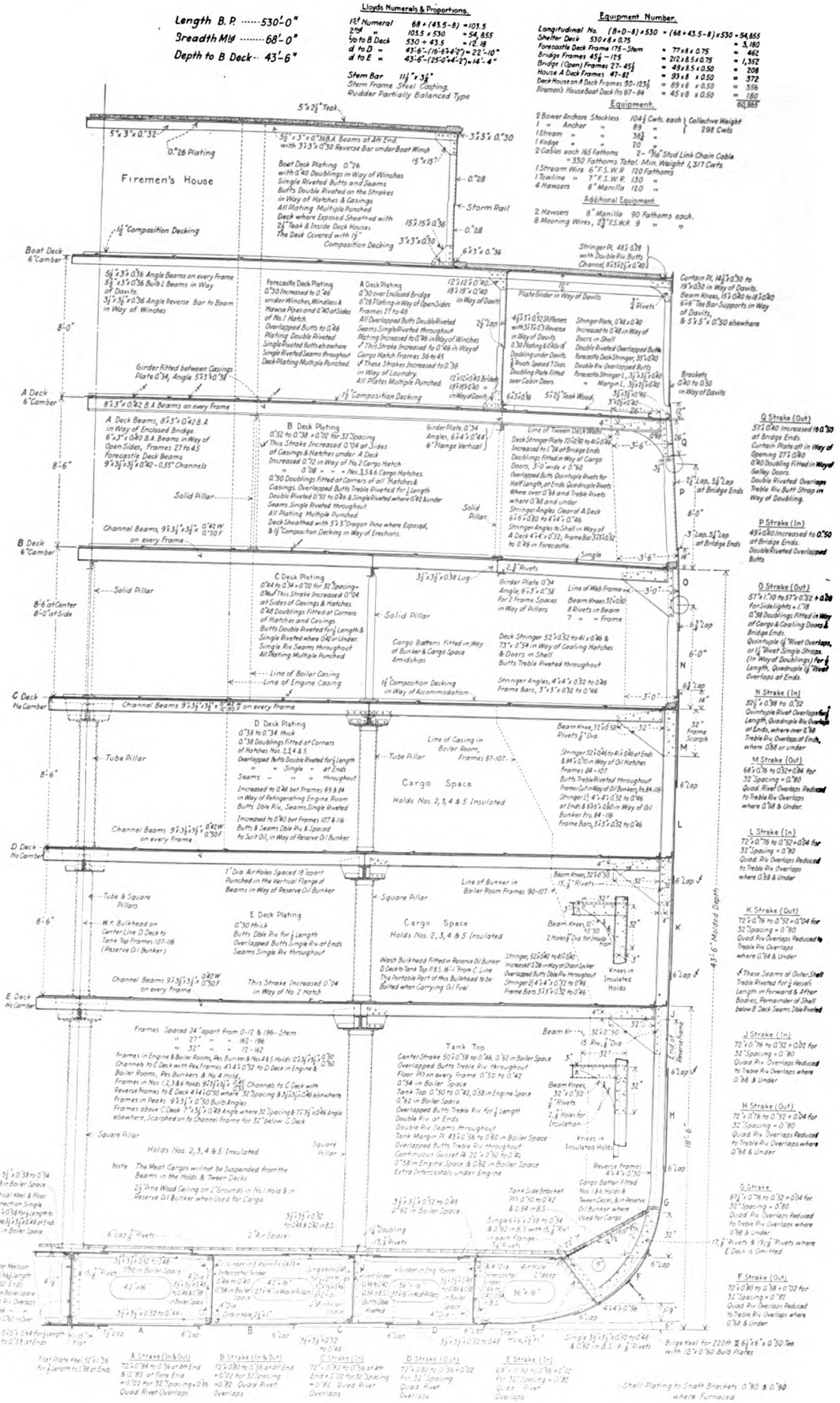
of S. S. Moreton Bay

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Machinery Arrangement, S. S. Moreton Bay

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Generated on 2024-09-12 11:55 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

and is arranged above the floor in order to provide the greatest accessibility.

Vickers system of lubrication is used in way of the stern tubes.

Four bladed propellers of the built-up type are fitted, the manganese bronze blades being bolted to a cast steel hub.

All valves on the superheated steam lines are made of cast steel with forged steel fittings and valve faces of nickel alloy.

SAFETY PROVISIONS

Every attention has been given to providing means for reducing the risk at sea and providing the most modern facilities for insuring the safety of passengers.

In general, the subdivision of the vessel complies with the full requirements laid down by the International Convention for the Safety of Life at Sea. Watertight doors located below the waterline are arranged so that they may be operated both by hand and by the Stone hydraulic system from the bridge or from either side of the bulkhead at the door itself. Fire bulkheads have also been arranged in the superstructure as required by the "Convention" and in the event of fire in any compartment, that compartment can be effectively isolated until the fire is extinguished.

A water service system for fire extinguishing purposes and a special steam fire extinguishing system for the main holds, with connections for steaming out double bottom and fuel oil tanks, is also fitted. Special fire extinguishers are also fitted in racks throughout the several compartments in accordance with the rulings of the "Convention."

Sea risks have been further reduced by the provision of lifeboats sufficient to accommodate the ship's full complement. The boats include:

Two 30-foot motor launches equipped with wireless.
Six 30-foot lifeboats.
Six 28-foot lifeboats.
Two 20-foot dinghies.

Lifeboat davits of the Australis type have been fitted.

Life jackets and life buoys are available throughout the accommodations and a powerful wireless installation is carried on the boat deck.

CARGO HANDLING GEAR

Special attention has been given the cargo handling gear fitted aboard the *Moreton Bay* as efficient cargo handling is essential to economical operation of any vessel and particularly in a vessel handling refrigerated or similar perishable cargoes.

The cargo and derrick gear of the *Moreton Bay* have been designed to eliminate lost motion. The gear includes 18 tubular steel derricks of 5 tons capacity, four of 3 tons and one designed to handle heavy loads up to 35 tons. The arrangement provides for four booms stepped on tables at each mast, the 35-ton derrick being stepped on the forecastle deck at the base of the foremast and the remaining booms stepped on derrick posts which are fitted with cowls and also utilized as ventilators. Two 3-ton electric cranes are installed on "B" deck in front of the bridge.

A total of 23 winches has been provided and distributed as follows:

One, 16 by 10 inches, aft, for warping purposes
Two, 16 by 10 inches, on forecastle for warping, handling cargo, and operating the 35-ton derrick
Eighteen, 8 by 12 inches, located in way of cargo booms
Two, 6 by 10 inches, for operating cargo booms

Six of the cargo winches on the boat deck are specially adapted for working 8 "Maces" boat winches through a chain drive.

AUXILIARY MACHINERY

A steam windlass of high power and speed, with nigger heads on each side for warping, is located on the forecastle.

One steam capstan, 12½ by 10 inches, is fitted aft.

The steering gear is of the Vickers electric hydraulic type consisting of two complete gears, each operated by a Williams-Janney variable delivery pump and controlled from the navigating bridge by means of a telemotor installation.

The refrigerating machinery consists of two horizontal, compound, marine type engines, 14 by 26 inches diameter by 21 inches stroke driving one horizontal double acting CO_2 compressor. These machines, together with the necessary gas condensers, separators, circulating pumps, etc., are erected on "D" deck over the engine space.

Ventilation in the insulated holds and 'tween decks, when carrying fruit, is accomplished by the installation of four large Sirocco fans. The ventilation of the passenger and crew accommodations is effected by natural means and additional cowl ventilators are supplied for exhaust from the holds.

Fresh water storage tanks are constructed between the shaft tunnels and in addition large fresh water tanks are located over the firemen's quarters on the boat deck.

An emergency lighting set, operated by a Diesel oil engine and having a 35-kilowatt capacity, is located in a house above "A" deck and used to supply current for lighting the vessel in the event of a breakdown of the main generators.

Steam heating is provided for throughout the vessel, radiators installed in the various compartments being arranged so that the temperature may be regulated to suit those occupying the compartments.

In all, the vessel constitutes a most skillfully designed structure, both from the aspect of its special trade and particularly with regard to the comforts and conveniences of the accommodations for both passengers and crew.

The *Moreton Bay* was constructed in the shipyard of Messrs. Vickers, Ltd., at Barrow-in-Furness and to this yard was also awarded the contract for the *Hobson's Bay* and *Jervis Bay*. Contracts for the *Largs Bay* and *Esperance Bay* were awarded the William Beardmore & Company, Ltd., of Dalmuir.

Electrically Operated Coal Barges in Service on San Francisco Bay

By Charles W. Geiger

TWO coal barges have recently been placed in operation on San Francisco Bay, which are operated by electric motors, current for same being generated by a gasoline engine driven generator.

The superstructure on these barges carries a trolley suspended from a beam and operating a grab bucket. A 16 horsepower motor operates the trolley back and forth along the track on the superstructure, a 30 horsepower motor raises the grab bucket and a 30 horsepower motor opens and closes the bucket. These motors are placed in the main engine room, which is of steel construction and occupies one end of the barge.

The superstructure carrying the track enables the trolley and grab bucket to be extended out over the coal in the hold of the barge, when the grab bucket is lowered, picks up a load of coal, is raised to the trolley and the trolley and grab bucket is moved to the center of the barge directly over a receiving hopper. When the bucket is opened the coal drops into this receiving hopper, which in turn discharges the coal into a skip or elevator bucket. This elevator bucket is then elevated by electric motor and when at the proper height automatically discharges its contents into a chute which leads into the bunker of the steamer.

One of the most novel features in connection with this barge is the control room, shown in Fig. 3. In the foreground can be seen the controls for the three motors operating the trolley and grab bucket. In this room there are telltale

Generated on 2024-09-12 11:21 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

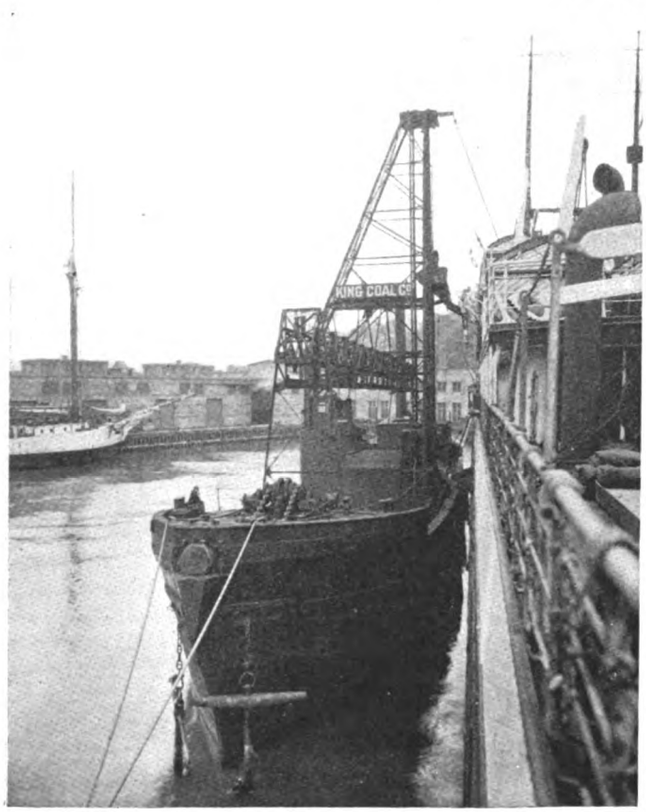


Fig. 1.—General View of Electrically Operated Barge Delivering Coal to a Japanese Liner

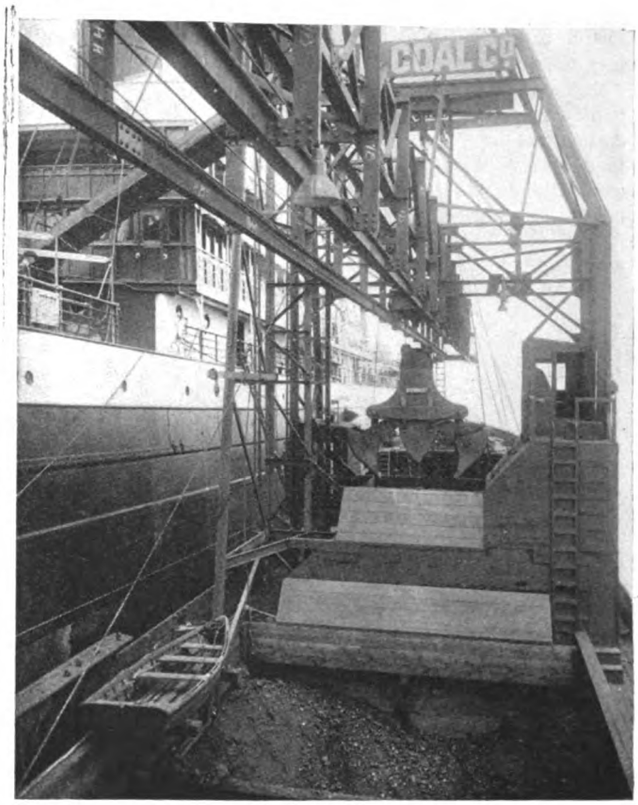


Fig. 2.—Close-up View of Barge Showing Grab Bucket in Action. No Shoveling Is Required

lights which enable the operator to know exactly where the grab bucket is without the necessity of looking, although he has an unobstructed view of the bucket at all times, the control room being provided with windows on three sides and with iron gratings in the floor.

After the operator opens the grab bucket, which delivers the coal into the central hopper, he opens a gate in the central hopper, which discharges the coal into the elevator bucket. When he is ready to discharge the elevator bucket into the bunkers of the steamer, the operator presses a button shown at *A* in Fig. 3 which raises the elevator bucket to the proper height, turns the bucket over so that the contents run into a chute, holds the bucket in this position (by means of a relay) until the coal has all been discharged into the chute, reverses the motor and lowers the elevator bucket to the proper position under the central hopper ready to receive another batch of coal. This is all done without any attention on the part of the operator, other than pressing the push button. It will be seen that there are three push buttons for the operation of the elevator bucket, one for the purpose of stopping the elevator bucket at any point and the other to reverse the elevator bucket.

There is a main switch in the engine room, which can be opened and closed by means of two push buttons in the control room. By this means the main switch can be opened or closed by the operator from the control room, making it unnecessary to operate the main switch by hand, although this is possible. In the control room there is an emergency switch operated by a push button. By pushing this button, every motor on the barge is instantly stopped. This is a very desirable "safety first" feature.

The generator is mounted on the engine bed and is direct connected to a four-cylinder, 125 horsepower gasoline engine, operating at 280 revolutions per minute. Distillate is used for fuel, only ten gallons being required per hour when the barge is operating at full capacity. Each barge

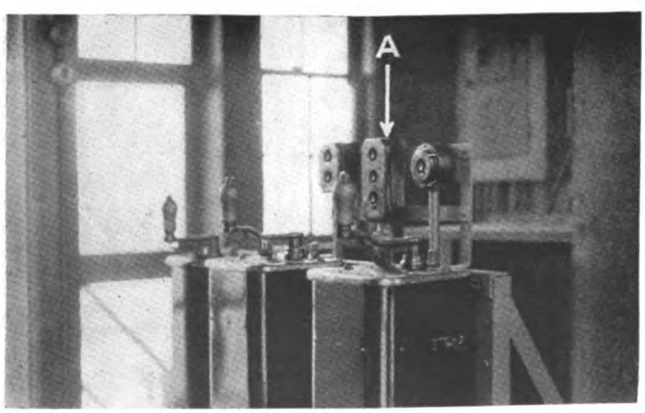


Fig. 3.—Control Room

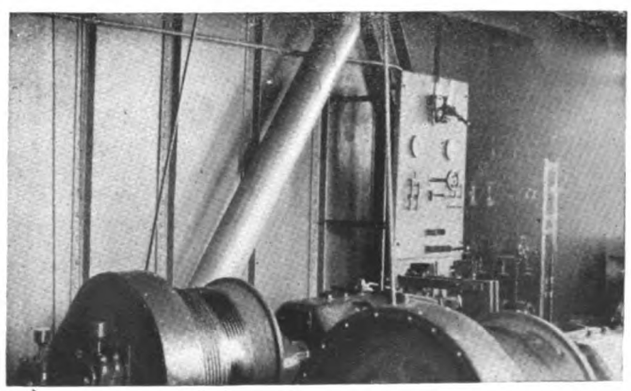


Fig. 4.—Engine Room, Showing Main Switchboard

Generated on 2024-09-12 11:28 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

has a capacity for delivering 100 tons of coal per hour into the bunkers of steamers.

In connection with these barges there is operated a traveling gantry crane electrically driven. The rails on which the crane runs have a gage of 200 feet. The length of travel along the bulkhead is 550 feet, current for operating the motors being obtained by a third rail system. This gantry bridge is equipped with a grab bucket capable of picking

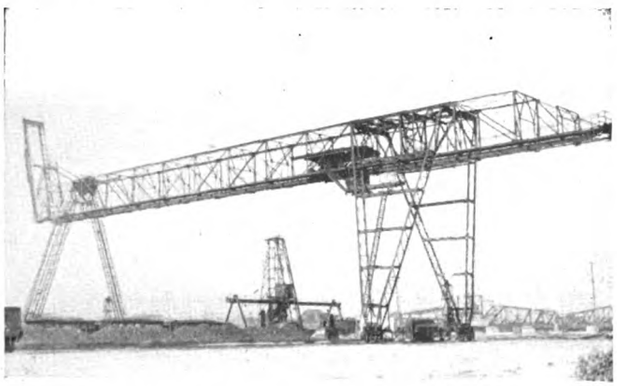


Fig. 5.—Traveling Crane at Standard Oil Plant in Alameda. One of the Electrically Operated Coal Barges Can Be Seen in the Distance

up two tons. This is used in discharging coal from cars. There is an extension out over the water by means of which the coal can be delivered direct from cars to the barges, or from the storage pile to the barges. This gantry crane is also used for handling crushed rock and sand from barges to cars or to storage yard.

New Mooring and Maintenance Tenders in Service in Mexican Waters

OF the two duplicate steel mooring and maintenance tenders recently designed by Whittelsey and Whittelsey, naval architects, of New York, and built by Kyle and Purdy, City Island, New York, the *Toteco,* owned by the International Petroleum Company of New York, has been in service in Mexico continually for about eight months, and the *Tacomonte,* owned by the Atlantic Gulf Oil Company of New York, has recently arrived and gone into service in the same waters. Both vessels are classified by the American Bureau of Shipping.

As these vessels are required for almost constant service for the maintenance of sea loading stations, including repairs to pipe lines, mooring buoys, etc., their design and construction are very rugged throughout and the machinery and equipment are laid out with the idea of simplicity and accessibility in order that the operation and any necessary repairs may be carried out with the facilities at hand. This service requires accommodations for rather a large mooring and maintenance crew, provided for in the forecastle, aside from the ship's crew, which is housed in the deck house.

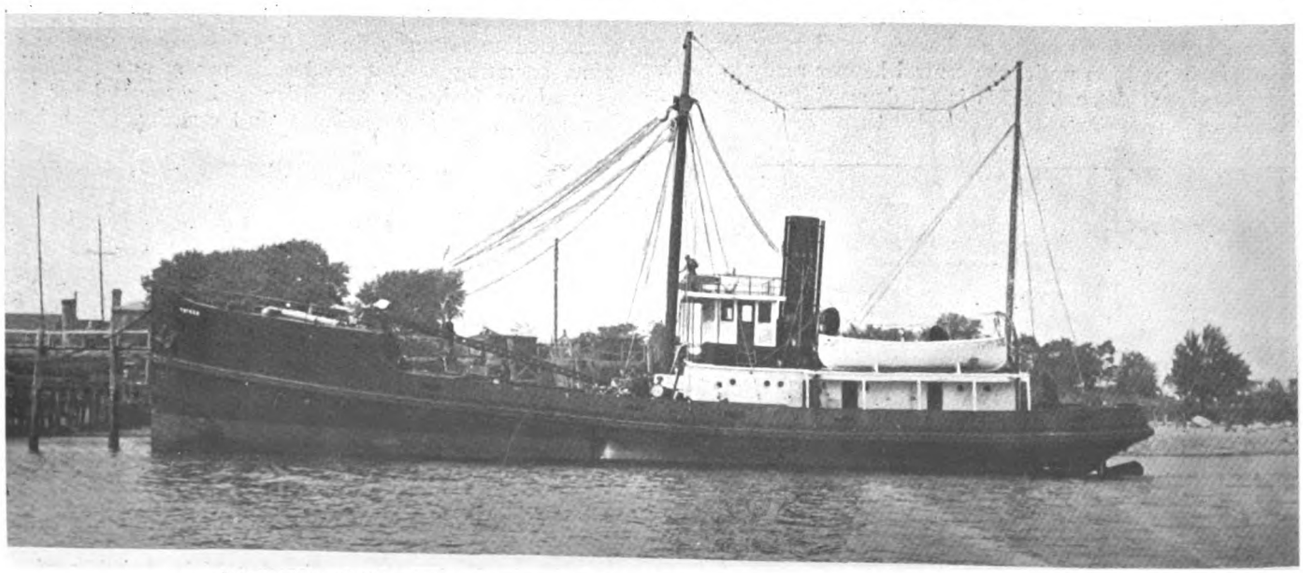
The principal dimensions of the vessel are as follows:

Length overall	133 feet 8 inches
Length on load waterline	126 feet 9 inches
Beam, molded	32 feet 0 inches
Depth	14 feet 6 inches
Draft (mean)	10 feet 6 inches
Draft (maximum)	11 feet 0 inches

The hull is of steel, with steel decks and deck houses and a wooden wheel house. Propulsion is by a four-bladed propeller driven by a surface condensing compound engine with cylinders 18 and 38 inches in diameter and 26 inches stroke developing 500 indicated horsepower at 105 revolutions per minute. Steam is supplied by a two-furnace Scotch boiler having 2,000 square feet of heating surface and equipped with the Todd fuel oil burning system and forced draft. The main condenser has 1,000 square feet of cooling surface and the engine room auxiliaries comprise a hot well, Reilly feed water heater, two vertical feed pumps, fire and bilge pumps, centrifugal circulating pump, sanitary pump, fresh water pump, air pump, injector, syphon and fuel oil set, all steam driven.

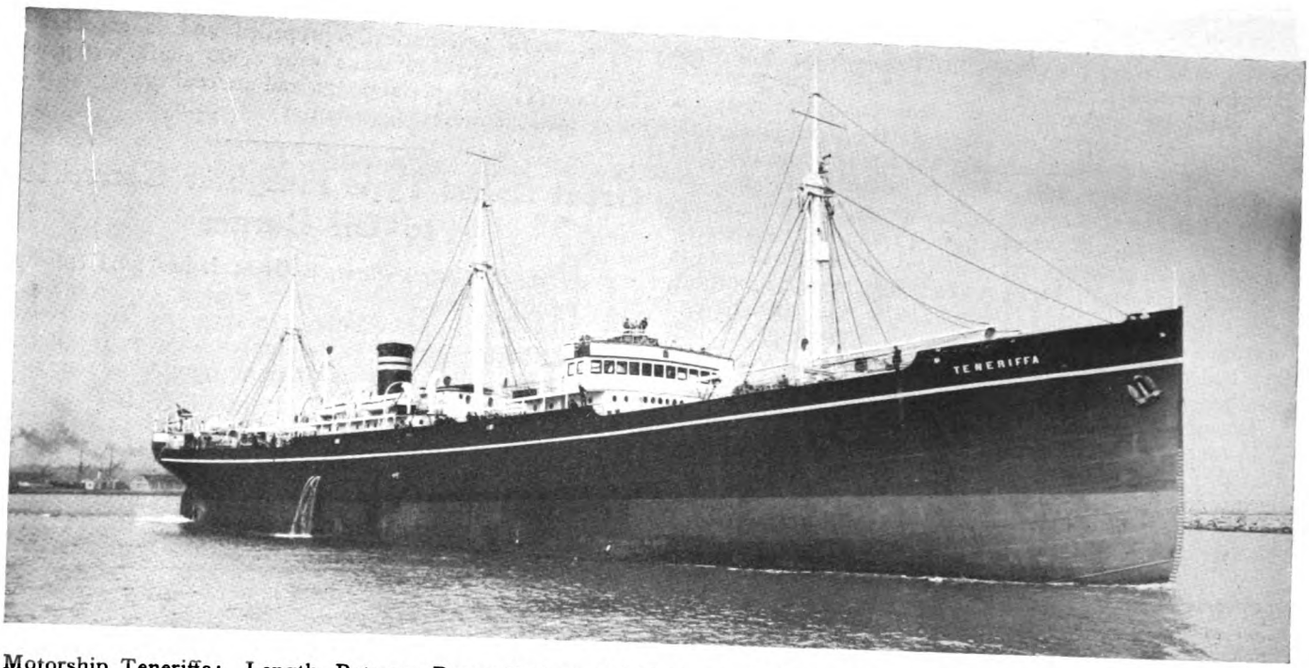
For handling heavy weights there is a steel derrick operated by twin Lidgerwood hoists. The falls, of Durable wire rope, have a capacity of 15 tons on a seven part line. The deck machinery includes a Hyde steam windlass and steam steering gear. Adjacent to the galley is a 1 ton Brunswick, steam driven, direct expansion, refrigerating machine. Electricity for lighting is supplied by a 10 kilowatt General Electric steam driven generator and a 2½ kilowatt Cutting and Washington wireless set is provided.

On her maiden voyage from New York to Tampico the *Toteco* averaged a speed of 9.3 knots, which is about a knot faster than anticipated in view of the fact that the vessel was fitted with a towboat type wheel.



International Petroleum Company's Mexican Sea Loading Station Tender Toteco

Generated on 2024-09-12 11:25 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Motorship Teneriffa: Length, Between Perpendiculars, 425 Feet 5½ Inches; Beam, Molded, 55 Feet; Depth, 38 Feet 6 Inches; Draft, Loaded, 29 Feet ¾ Inch; Displacement, Loaded, 15,025 Tons; Deadweight Capacity, 10,875 Tons; Indicated Horsepower, 3,100; Speed, Designed, 11¼ Knots

Norwegian Motorship Teneriffa

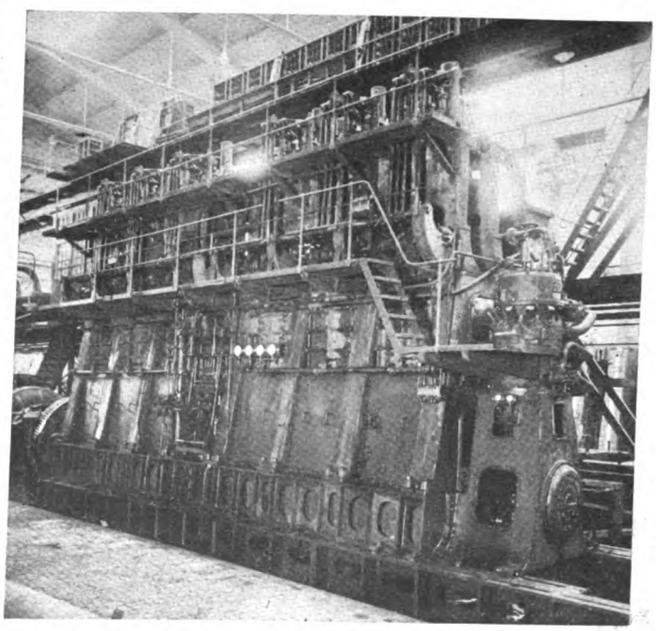
Twin Screw Cargo Ship of 11,000 Tons Deadweight Built by Burmeister and Wain

By Our Special London Correspondent

THE motorship *Teneriffa*, the first of three oil engined vessels being built by Burmeister and Wain for Wilhelm Wilhelmsen, the well known Christiania shipowner, ran her trials in May. She is a standard vessel similar to many which Burmeister and Wain has built for other owners, having a deadweight capacity of about 11,000 tons. The length is 425 feet, the beam 57 feet and the speed is 11¼ knots on a fuel consumption of 10 tons daily.

The *Teneriffa* is a pure cargo vessel, with accommodation for about a dozen passengers. The machinery equipment is of the well known Burmeister and Wain standard design comprising two sets of six cylinder four cycle engines developing 1,550 indicated horsepower at 120 revolutions per minute and having six cylinders 630 millimeters bore and 960 millimeters stroke.

The control of the engine is, as usual, effected by a small reversing and two starting throttle levers. On actuating the former a servo motor is brought into operation which lifts the push rods off the camshafts, moving the camshafts fore and aft and bringing the astern cams below the push rods; afterwards the latter are brought into contact with their cams. The engine is then in a position to run in the astern direction and by moving both of the starting and throttle levers forward, starting air is admitted to all six cylinders. A further movement of these two levers causes the fuel pumps to be brought into operation and the starting air is cut off.



One of the 1,550 Indicated Horsepower Diesel Engines Installed in the Teneriffa

The engines will run down to a minimum speed of about 60 revolutions per minute which is sufficient for all maneuvering purposes. The air injection compressor of the three stage type is driven off the forward end of the main crank shaft supplying air at a pressure of 68 atmospheres.

Fuel is carried in the double bottom, the total capacity being 1,800 tons while 15 tons of lubricating oil are allowed for.

Generated on 2024-09-12 11:26 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

The auxiliary plant is electrically operated and three Diesel driven dynamos of 90 horsepower running at 300 revolutions per minute are installed in the engine room for this purpose. They supply power to the three lubricating pumps, the piston and circulating water pumps and the other auxiliaries in the engine room. In addition, the electrical plant comprises 12 three-ton cargo winches, the windlass and an electric hydraulic steering gear. There is a single electrically driven air compressor installed in the engine room in addition to a small emergency set for the same purpose, which is steam driven and is of course only brought into operation in case of complete loss of air on the ship. A donkey boiler is fitted which supplies steam to this engine, in addition to generating steam for heating the cabins.

During the official trials of the *Teneriffa,* which were held over a measured mile course on May 3, the vessel displaced 4,802 tons on an average draft of 10 feet 4¾ inches and developed an average of 3,383.8 indicated horsepower at 138.4 revolutions per minute, giving the vessel an average speed of 12.29 knots. During the consumption test, the main engines developed 3,254.49 indicated horsepower at 134.6 revolutions per minute with a fuel consumption of 0.2973 pound per indicated horsepower per hour, including the consumption of the auxiliary engines producing the necessary current for the auxiliary machinery, steering engine and electric lights. The fuel oil used had a calorific value of 18,450 British thermal units.

Japanese Fuel Ship Kamoi Launched by New York Shipbuilding Corporation

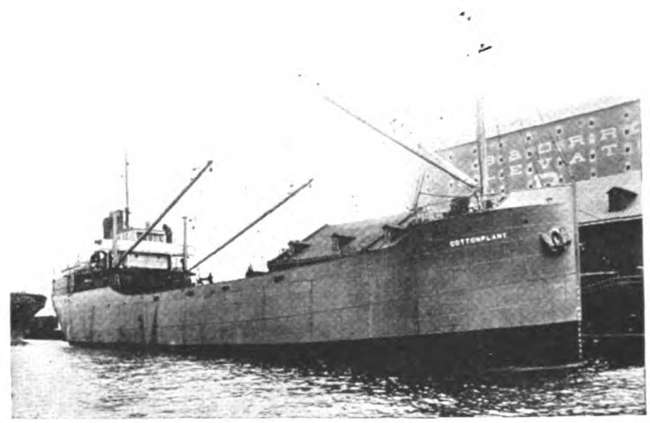
THE twin screw, fuel supply ship *Kamoi,* launched on June 8 at the yards of the New York Shipbuilding Corporation, Camden, N. J., and christened by Madam Saburi, wife of the Charge d' Affaires of the Japanese Embassy, Washington, D. C., and daughter of the famous Marquis Komura, is the first electrically propelled ship of the Imperial Japanese Navy. On a length of about 500 feet and a designed draft of 28 feet the vessel has a displacement of 20,000 tons and a deadweight carrying capacity of about 13,000 tons. She is designed to carry 10,000 tons of oil; provision also being made for alternately carrying about 2,000 tons of bunker coal.

Launching of the Kamoi

The vessel is electrically propelled and is expected to achieve a speed of 15 knots with 8,000 shaft horsepower. The boilers are of special design and are coal fired; provision being made, however, for auxiliary oil firing.

Great Lakes Type Freighter Converted to Oil Burner

THE S. S. *Cotton Plant,* a Great Lakes type freighter owned by the Pacific Lumber Company of San Francisco, Cal., has recently been converted from a coal to an oil burner for use in the lumber trade on the Pacific Coast. Installation of the oil burning equipment, consisting



S. S. Cotton Plant Converted to Oil Burner

of a complete Bethlehem-Dahl mechanical system, was carried out by the Baltimore Dry Docks Plant, Baltimore, Md., of the Bethlehem Shipbuilding Corporation, Ltd.

The *Cotton Plant* was built for the United States Shipping Board in 1919 by the Great Lakes Engineering Company at Ecorse, Mich., and was recently purchased by the Pacific company. The following are her principal dimensions:

Length	253 feet 4 inches
Beam	43 feet 7 inches
Depth	24 feet 5 inches
Capacity	4140 deadweight tons
Speed	10 knots
Boilers	2 Scotch, 13 feet 6 inches by 11 feet
Engine	1 three-cylinder, triple-expansion

NEW AIRPLANE COMPASS.—A satisfactory type of airplane compass has been invented by Doctors Paul R. Heyl and Lyman J. Briggs of the Bureau of Standards, of the Department of Commerce. Flying tests with this instrument have been made, and the air service is now engaged in putting a number of models into service. The instrument weighs only 13 pounds, while the weight limit set by the air service was 25 pounds.

The new compass depends for its action not on a magnetic needle, but upon a revolving coiled wire. This principle is by no means new, but it has remained for the Bureau of Standards to apply it in such a way as to make the device practically operative under the very severe conditions prevailing in actual flight or airplane stunts.

The problem of perfecting a satisfactory aircraft compass was given the Bureau of Standards about a year ago. At the end of the war no completely satisfactory compass had been devised. Its importance to aviation is apparent when it is remembered that no airplane compass heretofore perfected has been able to keep up with the evolutions of a plane in all kinds of service.

Generated on 2024-09-12 11:23 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Diesel Electric Schooner Yacht Alcyone

Three-Masted, 168-Foot Yacht Equipped with Winton-Diesel Westinghouse Electric Auxiliary Propelling Machinery

By H. C. Coleman*

WHEN Henry W. Putnam, of New York City, owner of the three-masted auxiliary schooner yacht *Alcyone*, found it necessary to replace the old reciprocating engine drive on his boat, he was so impressed with the many advantages of the Diesel-electric system of propulsion that he gave orders for the removal of the engines, boilers and auxiliaries and for the installation of two Diesel engines with electrical transmission of power to the propeller. As a result of his decision to adopt this most modern development in marine propulsive equipment, there passed down the lower bay in New York Harbor recently, on her sea trial, one of the finest equipped and easiest handled little vessels we have ever seen.

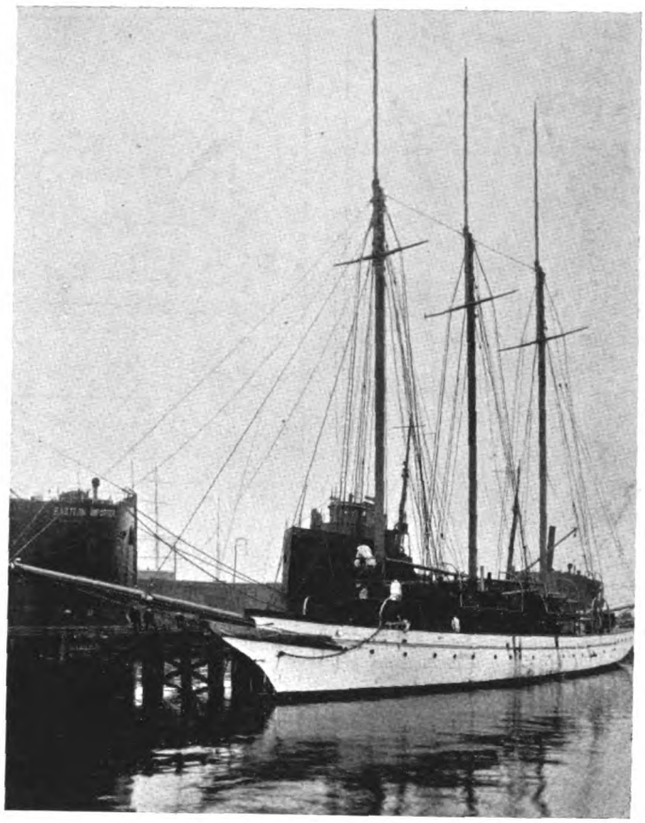


Fig. 1.—Auxiliary Schooner Yacht Alcyone

The *Alcyone* (Fig 1) is registered at 420 gross (262 net) tons and is 168 feet long overall, with a beam of 30 feet and draft of 15 feet. She has been completely refitted and overhauled. A large deck house had been added to the quarters amidships.

The propelling plant of the yacht consists of two six cylinder, Winton Diesel engines, direct connected to Westinghouse direct current generators, which supply a double unit motor, direct connected to the propeller shaft. Each engine is rated at 225 horsepower at 250 revolutions per minute. Each engine drives a 140 kilowatt, 125 volt, shunt wound, direct current generator and a 15 kilowatt, 125 volt compound wound exciter. The exciters are operated at 900 revolutions per minute, being driven by Morse chains from the main generator shafts.

The engine and generator, together with the generator bearing, are mounted on a rigid cast steel semi-bedplate, as shown in Fig. 2, making the unit convenient to handle and secure in the boat. The sets are placed abreast of each other in the vessel, with the exciters mounted outboard and supported on structural steel work, securely fastened to the ship frames. Fig. 3 shows the engine room looking forward from the motor room door.

The generator bearings are of the standard sleeve type with oil ring lubrication. Provision is also made for forced feed lubrication from the engine oiling system, as an auxiliary method of oiling the bearings.

The propelling motor is of the double unit type, consisting of two field structures and two armatures mounted on a common shaft, supported by two pedestal bearings. It is rated at 350 horsepower, 250 volts, 175 revolutions per

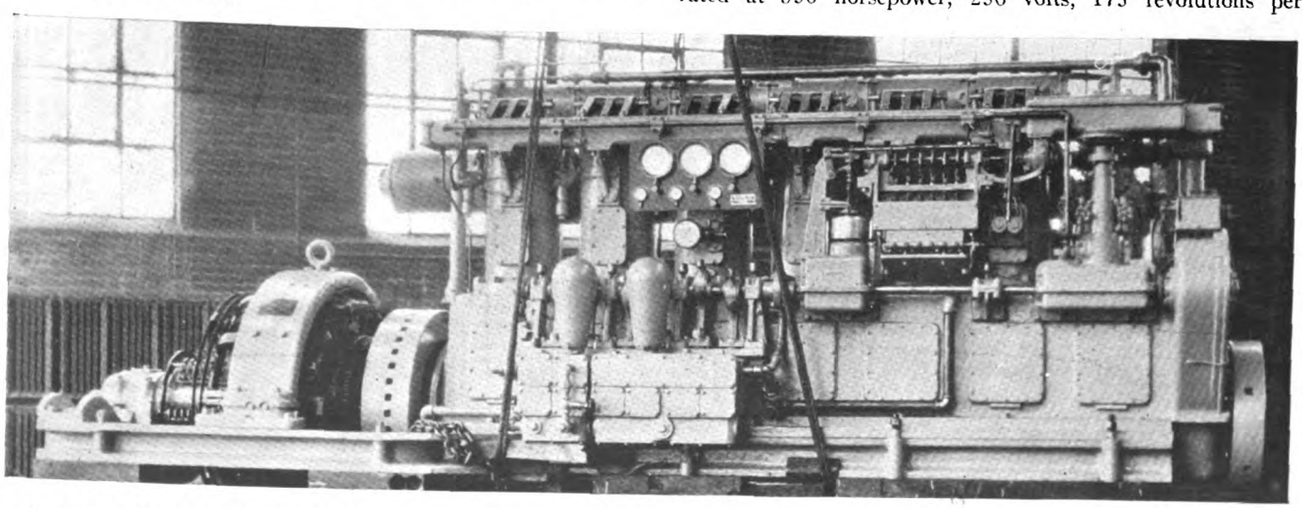


Fig. 2.—One of the Two 225 Horsepower Winton Diesel Engines Connected to a 140 Kilowatt Westinghouse Generator

*Marine section, general engineering department, Westinghouse Electric & Manufacturing Company.

Generated on 2024-09-12 11:28 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

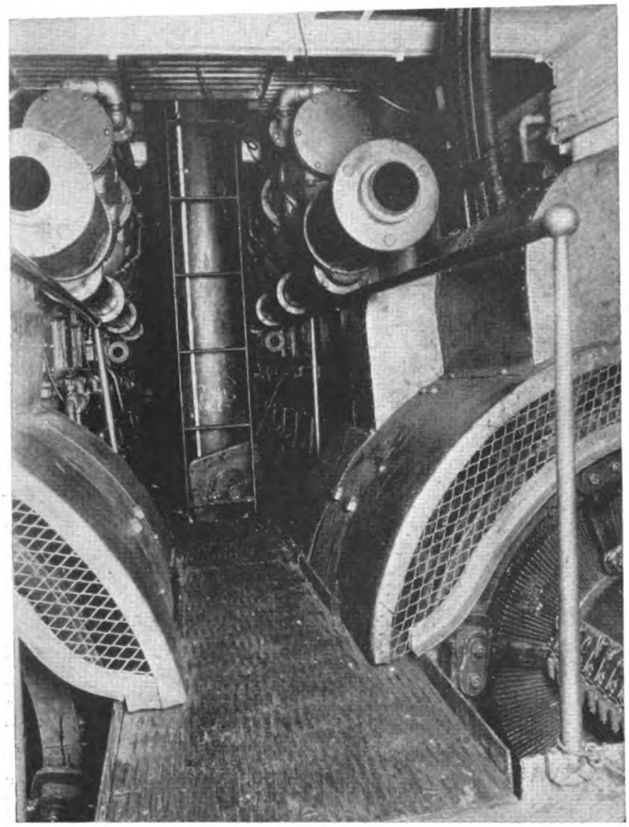


Fig. 3.—View in Engine Room, Looking Forward From Motor Room Door

Fig. 4.—The Control Board for Propelling Equipment, Showing Chief Engineer Operating the "Master Controller"

minute, and is of the shunt wound, self-ventilated type. The bearings are duplicates of those used on the main generators. They are fitted with an auxiliary gravity feed oiling system, consisting of a small reversible geared oil pump, direct connected to the front end of the motor shaft and mounted on the bearing pedestal, and an oil reservoir to which the pump lifts the oil from the bearing overflow connections. A by-pass with pressure gage and valve for regulating the pressure is provided in the piping system.

The motor is located well aft where the lines of the vessel are very fine, necessitating the use of a double unit machine. The frame supporting feet are located near the horizontal centerline of the motor and are carried on steel beams secured to the ship's framing. The bearing pedestals are supported on yokes, the ends of which are mounted on the side beams which carry the motor field frames. The shaft is flanged and is bolted directly to the propeller thrust shaft.

The motor room is ventilated by a motor driven blower located in the engine room.

CONTROL

The most interesting feature of the installation is the control, which must provide for ease of operation, responsiveness to the action of the operator and absolute reliability in the handling of the ship under all conditions. It must be simple and still provide for the maximum of flexibility of operation. It must protect the machinery against dangerous overloads, and still prevent damage to the ship, due to loss of power in an emergency. All of these requirements are admirably met by the control equipment which has been installed on the *Alcyone*.

Fig. 4 shows the complete control board for the propelling equipment, as installed on this boat. It is mounted fore and aft on the starboard side of the flat above the after end of the engine room.

The Ward Leonard scheme of control is used, whereby the starting, reversing and complete speed control of the motor is effected by adjusting the excitation of the separately excited, main generators. This makes the actual operating, or "master controller" part, so to speak, very small, simple and easy to handle, since only the generator field current has to

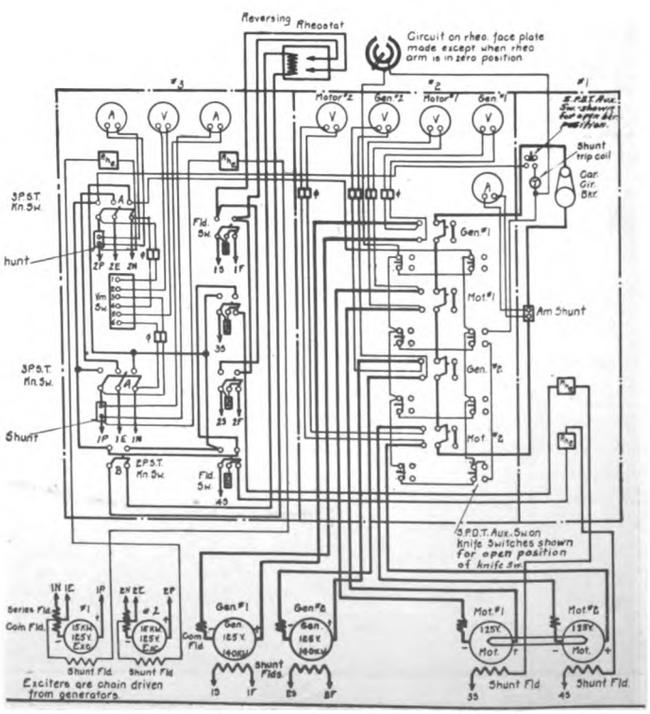


Fig. 5.—Diagram of Connections

Generated on 2024-09-12 11:46 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

be handled. This current is only about 1½ percent of that in the main armature circuits.

MASTER CONTROLLER

The "master controller" consists of a reversing rheostat located behind the switchboard and operated through chain and sprockets, from the main control hand wheel on the face of the panel, shown in Fig. 4. The same panel carries a double pole, double throw, knife switch, for each main generator and each motor armature. As will be seen from the diagram of connections, Fig. 5, the two generators may be connected in series with the two motor armatures also connected in series, by closing the switches to the left side. This is the running condition for full power operation. By closing the proper switch to the right side, either generator or either motor armature may be cut out of the series circuit, allowing for operation on the remaining units, connected in series. These switches are electrically interlocked with the circuit breaker so that any movement of them with the reversing rheostat in any position, except the "off" position, will trip the breaker; also the breaker will not remain closed, if the motor switches are both in the short-circuit position.

Convenient to the main control hand wheel is an ammeter, showing the operator the load on the motor, either ahead or astern, the instrument dial being marked accordingly. Above, on the same panel are two generator voltmeters and two motor voltmeters. All instruments have black dials with white scales and pointers, making them very easy to read in such a location.

CIRCUIT BREAKER

On the adjacent panel is the carbon circuit breaker which is set to open only on extreme overloads. It is not possible in ordinary maneuvering to obtain loads sufficient to trip the breaker and jeopardize the safety of the ship; as for instance in docking. This panel also carries two motor rheostats with concentric handles. With these, the fields can be adjusted so that the two armatures divide the load equally, as shown by equal readings on the two motor voltmeters. Then the two rheostat handles are clutched together, and operated as one thereafter.

RHEOSTATS AND SWITCHES

The third panel carries the instruments, rheostats and switches for the two exciters, which may be operated either singly or in parallel on the excitation bus; also the motor and generator field switches and the reversing rheostat disconnecting switch. Each exciter is capable of supplying excitation to the complete propelling plant, thus leaving the other unit as a spare or as a source of power for auxiliaries. Above the main panel are two double throw switches, by means of which either main generator or either exciter may be connected to the auxiliary power bus. All switches and meters are plainly marked with suitable name plates, with white letters on black background.

After the main knife switches, field and exciter switches and circuit breaker have been closed, the operater has complete control of the maneuvering of the ship in the one main control hand wheel. The motor responds immediately to the movements of this hand wheel, and the complete operation of going from "full ahead" to "full astern" consists only in moving this hand wheel through 180 degrees. Since no circuits are opened, burning and consequent wearing of contacts, always present to a greater or less degree in other forms of control, are eliminated, which makes for reliability and low maintenance cost.

The reversing rheostat provides for 30 economical running speeds, equally apportioned between zero and the maximum, either ahead or astern. Also operation can be had from either main generator and both units of the motor at full power on the generator, in case one generating set is out of commission, or for a cruising speed. In this case, the motor field strength is reduced by the double rheostat, causing the motor to speed up, until full power is absorbed from the generator. The value of this arrangement for cruising is seen from the fact that the vessel will make a speed of 8.5 knots and has a cruising radius of 6,450 miles on one engine, while she makes a speed of 10.5 knots and has a cruising radius of 3,915 miles on both engines.

It is interesting to note that the same propeller and shafting as were used on the old steam engine drive were retained for the electric drive. Also very few alterations had to be made to accommodate the motor and generating sets. This is an example of how easily the steam driven ships may be converted into much more economical Diesel electric driven boats.

TRIALS

The equipment on the *Alcyone* operated to the satisfaction of all concerned on her trials. During her sea trials, a four hour full power run was made. The average propeller speed for this run was 160 revolutions per minute and the average boat speed 10.5 knots. The temperature of the machines at the end of the day's run, which included maneuvering in addition to the full power run, showed that considerable reserve capacity was available in the apparatus, if needed for emergency use. During the maneuvering trials it was demonstrated that the yacht could be stopped from full speed in less than double her length.

The *Alcyone* is the third schooner yacht to be equipped with this type of drive. The first two were the *Guinevere,* equipped with a 550-shaft horsepower drive, and the *Elfay* with a 90-shaft horsepower drive of the same type.

The engines of the *Alcyone* were made by the Winton Engine Works, Cleveland, O., while the electrical propelling equipment was built by the Westinghouse Electric & Manufacturing Company. The installation was made at the Tebo Yacht Basin of the Todd Shipbuilding and Dry Dock Corporation, under the supervision of Tams and King, naval architects, of New York.

The Reconstruction Hospital

ONE of the outcomes of the Great War has been an intelligent study of both the mechanical and therapeutic means of bringing maimed men back to physical health and usefulness. In this connection the ground has just been broken at 100th street and Central Park West, New York City, for a Reconstruction Hospital dedicated to the rehabilitation of men injured in the industries.

As seafaring men and shipyard workers are engaged in hazardous occupations where a physical disability disqualifies them from employment at their regular work, it is to the advantage of society as well as to the men who are crippled, to have a hospital where such restoration is made possible.

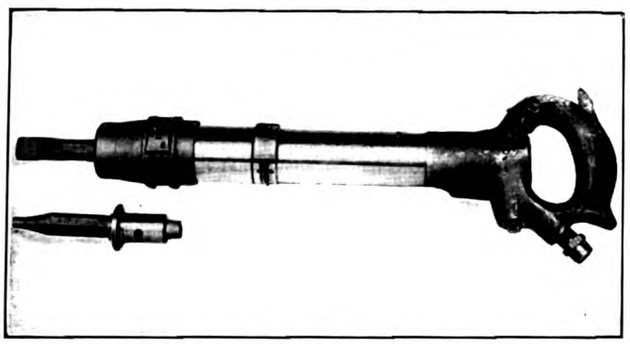
Seafaring men are particularly helpless when injured, as they often lack either the friends to help them or the knowledge of where to go to get aid. In the old days they were often seen limping around the waterfront, a burden to themselves and useless to the trade in which they had been trained. An institution devoted to the physical and mental restoration of men in such unfortunate circumstances can do a great deal of good.

SHIPPING BOARD CONTRACT.—The Emergency Fleet Corporation has just entered into a contract with the Texas Company for the movement of between 500,000 and 1,000,000 cases of oil to East and South African ports. This movement will be based on monthly shipments and extend over a period of a year under the managing agency of the Mallory Transport Lines, Inc.

Generated on 2024-09-12 11:31 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Pneumatic Tool for Removing Rivets

A pneumatic tool for removing rivets, known as the Thor No. 90-S rivet buster, has just been placed on the market by the Independent Pneumatic Tool Company, Chicago. This is a substantial tool, as shown in the illustration, being similar in design to the Thor riveting hammer. It can be



Easily-Operated Thor Pneumatic Rivet Buster

operated by one man instead of three and used in close quarters. The tool is well adapted for cutting off and backing out rivets of all sizes.

The operation of this tool by one man instead of three results in a considerable labor saving. Rivets can also be cut in more difficult corners and there is less possibility of damaging the steel plates.

On account of the blows being rapid but not so severe the plates do not buckle at rivet holes, thus wasting expensive material as is often the case with the old style heavy three man buster. The Thor machine is designed to cut the rivet off smoothly at the surface of the sheet without disfiguring or spoiling the material.

The chisels and backing out punches are provided with individual safety retainers and can be quickly changed in the hammer from cutting off to backing out without disassembling the small retainer from the shank.

Auxiliary Steam Yacht Completes Cruise Around the World

THE former flagship *Alôha* of the New York Yacht Club, owned by Commodore Arthur Curtiss James of New York, has just completed a cruise around the world, arriving at Newport, R. I., on June 1. She began the long cruise from New York on September 15 last and followed the route through the Panama Canal to Honolulu, China, Japan, Philippine Islands, India, Java and Ceylon, and passed through the Suez Canal to Marseilles, France.

The last leg of the cruise from Marseilles was made over the northern route, a distance of 3,900 miles, in 22 days, which was considered a very creditable record in view of the bad weather encountered on the way across. The yacht behaved remarkably well on the entire trip and when she was docked at Newport showed practically no effects of her long voyage.

During the war the *Aloha* served in the Navy as the flagship of Rear-Admiral Cameron McR. Winslow. She was built for Commodore James in 1910 at the Fore River Plant, Quincy, Mass., of the Bethlehem Shipbuilding Corporation, Ltd., and is equipped with two watertube boilers and one triple expansion steam engine, with cylinders 12 inches, 19 inches and 30 inches diameter by 24 inches stroke for auxiliary power. The yacht is 218 feet 4 inches in length overall and 35 feet 5½ inches beam, molded.

The Aloha, Former Flagship of the New York Yacht Club, Which Has Just Completed a Voyage Around the World

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Webb Institute Celebrates Annual Commencement

Distinguished Speakers Address Graduates—Advice Applies Equally Well to Those Who Are Learning by Experience

THE WEBB INSTITUTE, which is devoted exclusively to naval architecture and marine engineering, held its twenty-sixth annual commencement on June 10. In the absence of Commander Stevenson Taylor, president of the institution, who was in Europe at the time, Captain W. M. McFarland, vice president, acted as master of ceremonies.

Captain McFarland said it was a matter of great regret to him that Commander Taylor could not be there for he considered that the commander's work at the institute was of equal beneficence to that of Mr. William Henry Webb, its founder. Captain McFarland then read a cablegram from Commander Taylor which follows:

Stevenson Taylor

Walter M. McFarland

"I regret my absence from commencement today, the second time only since the first graduating exercises in 1897. My heart is with you all, trustees, officials, guests and students, particularly with those who now commence assuming responsibilities to which doubtless they look forward with pleasure. God speed them and bless all."

"STEVENSON TAYLOR."

THE CHAFFEY MEMORIAL PRIZE

Announcement was next made that the alumni had raised and presented to the Institute over $1,000.00, the interest on which was to be awarded annually to the student showing the highest degree of mental, moral and physical fitness. The prize this year was given to J. Byron Blood, who later read the valedictory address.

Captain McFarland concluded his remarks with the expression that it is a source of great satisfaction that a sound engineering education is a splendid foundation for a success in many fields and even though the present outlook in naval architecture and marine engineering is anything but bright and some of the graduates would probably have to enter other lines, he was confident that the passage of pending shipping legislation would encourage American citizens to build and operate vessels under the American flag.

A MAN TRAVELS BY HIS MIND

Commander Richard D. Gatewood, Director of the Division of Construction and Repair, United States Shipping Board, said in part:

"You gentlemen of the graduating class from this day forth start out to sea. Some of you actually will go out to sea. All of you, however, will start out upon that other sea of commercial life in which there are so many rocks, so many narrow shoal places, so many currents and so very few charts.

"We live by our visions, and the ambitious, the venturesome, the progressive among us, using the light of imagination and guided by reason and judgment, discern dim objects on the horizon of the sea of life toward which we feel impelled to move. But *then,* when we satisfy those desires, when we find the something greatly coveted, the horizon is still as far away as ever, and other shapes are always looming there calling our restless *minds.*

"It is for this that teachers have been training your *minds* these many careful years. They haven't trained your five physical senses, they've trained your *mind.* Surely you know that you cannot perceive absolute truth through the five senses. If men had tried to do that, the earth would still be flat, the sun would revolve around the earth and sink each night into the sea, the moon would be a silver disk in the sky a few inches in diameter. The greatest things of all, love and truth and duty and loyalty and courage, we can't know by our senses. We know them by our *mind.* The truth of the multiplication table is in no way dependent on our senses, is it?

"From today you will not travel any longer together, but let me ask you to be good travelers, to study the men you meet along the way and know that they must not be judged by their weaknesses, but rather by their power to lift their heads above others in time of stress and peril. Cultivate high ideals and hold fast to them whatever comes. Hold fast to the spirit of this Institute, hold fast to the spirit of the profession, the love of duty that is stronger than the love of life.

"Will you cultivate the art of traveling, the spirit of patient observation, the spirit of progress? I ask you because your careers will be watched with great interest. Word will come back here where you start. Will it be a good voyage you are about to make? *A man travels by his mind.*"

STICK-TO-IT-IVENESS

Mr. Alfred W. Kiddle, president of the Engineers' Club, stated that "the great thing in life is continuity of purpose founded, of course, on good conscience and directed by lofty ambition. Therefore, whatever particular field of endeavor within the great engineering profession, or indeed, in any of the other learned professions or in business, perhaps, that you may select in which to devote your faculties and your

Generated on 2024-09-12 11:27 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

labor, I enjoin upon you to determine for yourself as soon as may be possible a definite purpose or aim and rigidly adhere thereto, for work without an object leads to no achievement, and life without an aim is like a ship at sea without a port or destination.

WEBB APPRECIATIVE FUND

Mr. Joseph Husson, president of Webb Alumni Association, spoke of a "quarter of a million dollar fund" that had been subscribed by the graduates in appreciation of a four-year education in naval architecture and marine engineering together with meals and room during the school term of those four years, absolutely without cost. Competitive examinations are held each year in September. The Webb Institute was endowed in 1891 and opened in 1895 by William H. Webb, one of New York's most famous shipbuilders in the days when American clippers ruled the seas.

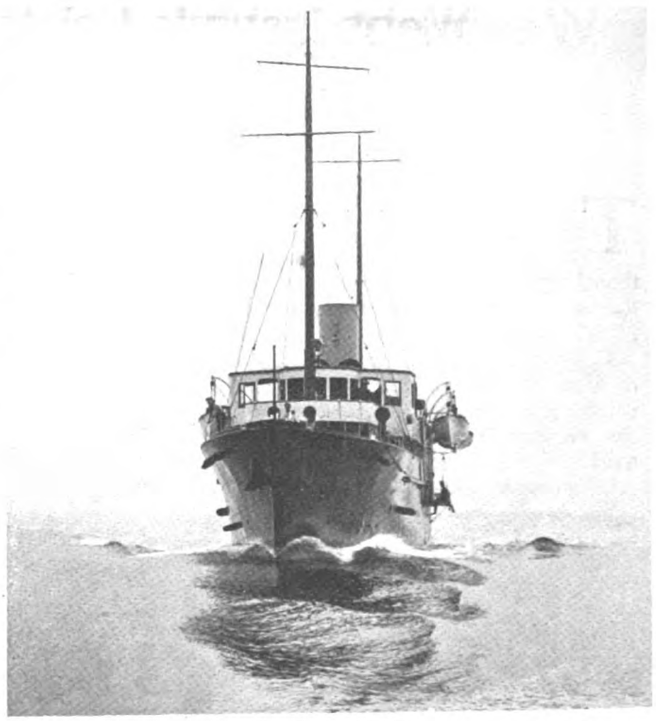
Dolphin, Largest Diesel Yacht, Delivered to Owner

THE Diesel cruising yacht *Dolphin,* built by the Newport News Shipbuilding & Dry Dock Company from designs of Cox & Stevens, New York naval architects, for Mortimer L. Schiff, was delivered to her owner on Saturday, June 3, having been only three months under construction. The *Dolphin* is claimed to be the largest Diesel motor yacht built in this country, being 180 feet in length, 24 feet beam, 14 feet depth of hold and equipped with two 500 horsepower Winton Diesel engines.

MAIDEN VOYAGE

The yacht left the builders' yard on Saturday morning, June 3 and arrived in New York harbor at two o'clock Sunday morning, her average speed from the capes to the lightship being 14½ knots without forcing the engines.

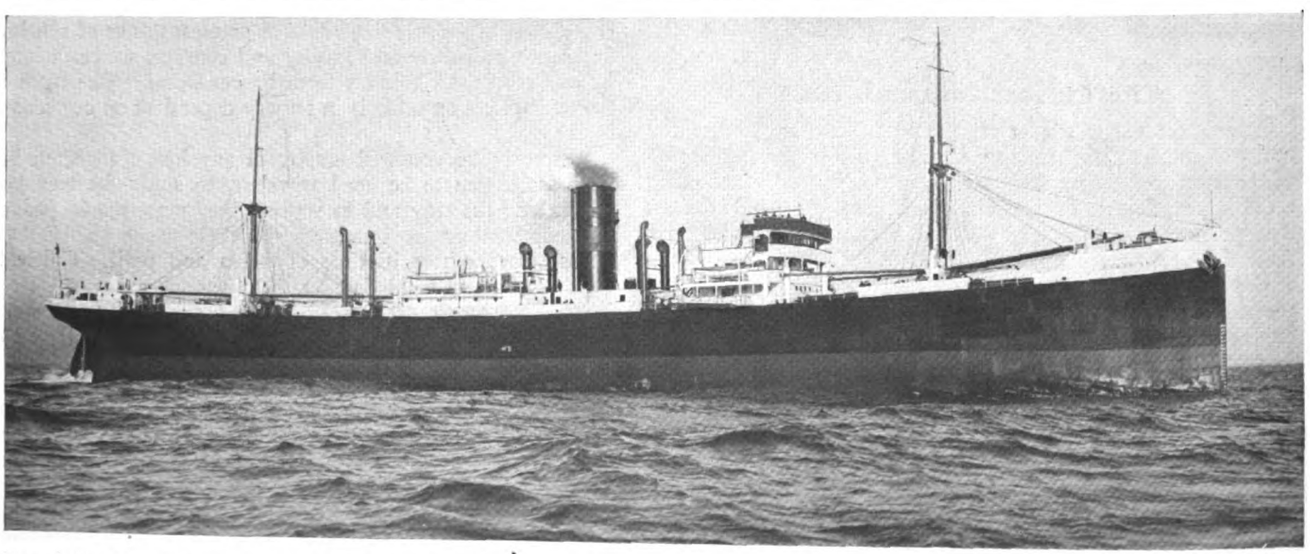
The *Dolphin* will be a notable addition to the yachting fleet as she is a sturdy craft with excellent sea-going qualities and accommodations that are most unusual both in the size and attractiveness of the various large rooms on deck as well as the living quarters for the owner and guests.



(Photograph by M. Rosenfeld, N. Y.)

Diesel-Engined Cruising Yacht Dolphin

SHIPPING BOARD SELLS DIESEL ENGINES.—The Material Sales Division of the United States Shipping Board Emergency Fleet Corporation has just consummated the sale of 2 McIntosh & Seymour 900 horsepower Diesel engines to the Munson Steamship Lines. It also has for sale the following Diesel engines: 2 Bolinder 320 horsepower; 1 McIntosh & Seymour 750 horsepower; 4 McIntosh & Seymour 750 horsepower; 8 Scandia Pacific Oil Engine Company 825 horsepower; 2 Scandia Pacific Oil Engine Company 825 horsepower; 2 McIntosh & Seymour 900 horsepower—1 right hand and 1 left hand.



Steamship Cynthiana Recently Built by Irvine's Shipbuilding and Dry Docks Company, Ltd., Middletown Shipyard, West Hartlepool, for Furness, Withy and Company, Liverpool

The vessel is of the shelter deck type, built to Lloyds' highest class, the dimensions being 435 feet 6 inches in length by 55 feet beam extreme by 30 feet 6 inches depth molded. She has three complete decks and a top-gallant forecastle, six hatches, grain divisions throughout, and water ballast in cellular double bottom, fore and after peaks and two large deep tanks, placed respectively forward of the boiler room and aft of the engine room. Propulsion is by a triple expansion engine with cylinders 29, 49 and 80 inches in diameter by 54 inches stroke supplied by Richardsons, Westgarth & Company, Ltd., Hartlepool. Steam is supplied at 180 pounds per square inch by four Scotch boilers working under Howden's forced draft and arranged for burning either coal or oil. On trial the vessel made a speed of 12½ knots.

Generated on 2024-09-12 11:26 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Adjustments of the Compass

Causes of Deviation of the Compass and Methods of Compensation

By C. H. Peabody, Dr. Eng.

THE magnetic compass points more or less to the north; the angle which the needle makes with the true north, that is, the geographic north, is known as the variation. In the northern states and the North Atlantic the variation is to the east; it may amount to fifteen degrees. Charts showing the magnetic variation are issued by the United States Coast Survey, variations to the east being marked plus and those to the west minus. The navigator of a wooden ship, with no iron near the compass, needs only to allow for the variation in order to steer a true course. Thus, if the variation is 10 degrees east and if the true course is 55 degrees northeast, the navigator will give the steersman the magnetic course as N. 45 degrees E.; that is, the magnetic course will be northeast. This comes from the fact that the compass card has 32 points each equal to 11 1/4 degrees, the ship's course is then north four points east, which comes out northeast as given. But compass cards are now divided into degrees as well as points and the courses are commonly given in degrees. The latest naval practice is to divide the compass card into 360 degrees numbered from north right around by the east and south. Thus, S. 45 W. becomes 225 degrees.

In some localities the variation may be very large; for example, in northern Canada near Baffin's Bay the compass becomes very unreliable which adds to the difficulties of Arctic navigation.

Iron Must Be Kept Away from the Compass

It is very important that iron should be kept away from the compass on a wooden ship; if for any reason it is impossible to do this, then some adjustment of the compass may be necessary. Such adjustment is commonly simple, but being unusual may be perplexing even to a compass adjuster; reference to this matter will be made later.

But ships, and especially steamships, are likely to be built of steel which affects the compass variously and intelligent adjustment becomes necessary.

For steel ships the same precept holds, that steel and iron must be kept from the immediate neighborhood of the compass, so far as possible. It is well that the wheelhouse should be built of wood and no loose iron and, in particular, no magnets should be kept in the wheelhouse. The shafting leading to the steering engine (or to the rudder) should be made of composition. Even the quartermaster must be considered and not allowed to carry a large clasp knife or other iron or steel.

Magnetism of the Ship

All the steel delivered at the building slip is likely to be magnetic in some degree, and the processes of working the steel into the ship, especially hammering, develops magnetism, so that the ship in a sense becomes one huge magnet. But again, we must keep in mind that steel or iron near the compass has the greater influence; a steel cargo boom near a compass may have more effect than the smokestack at a distance; such a boom must be stowed in its supports when compasses are adjusted.

The navigating compass is often on deck or on the bridge in such place as is at once convenient for taking observations and as little influenced by magnetism as possible. On a steel ship no place entirely free from magnetism can be found, but there is always a choice.

The magnetism we are now considering is called "permanent magnetism," because it is not changed by moving the ship around, nor by sailing to a distant port. It is liable to decrease more or less slowly but that matter will be treated by itself.

The whole effect of permanent magnetism may be likened to that of two magnets at the level of the compass; one magnet may be taken as fore-and-aft; that is, either forward or abaft of the compass; the other magnet may be taken as athwartship; that is, either to port or starboard. The permanent magnetism of the ship may consequently be compensated by two magnets that can be adjusted near the compass.

Compensation of Ship's Magnetism

An evident way of compensation is by the use of large bar magnets which are soldered up in copper cases to avoid corrosion. Now the north end of the compass needle is that which points to the north; and any magnet may have its similar end marked *N* or north. To test a magnet bring one end near the compass; its north end repels the north end of the compass needle. Sometimes the magnet or its case is painted red at the north end and blue at the south end. We have for a reminder that *r* is found in "north" and in "red," while *u* is found in "south" and in "blue."

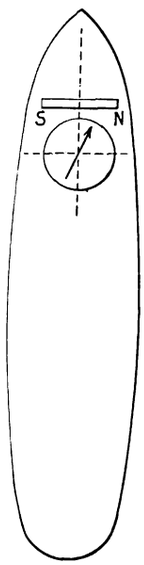


Fig. 1

In all cases, powerful magnets or other magnetic material should be brought near magnets only by intention and deliberately; "near" in this case means near enough to give intended effect and not "nearer."

Suppose that the ship has been brought on a correct magnetic north and south course, as shown by Fig. 1; and that the compass needle makes an angle with that course, which angle is known as the deviation of the compass. A bar magnet may be laid down athwartship as shown with the north end to the starboard; it will tend to correct the deviation and it can be moved toward the compass until the deviation disappears. This operation will correct the athwartship magnetism of the ship.

The ship may then be brought to a correct east and west magnetic course, as shown by Fig. 2. A fore-and-aft magnet

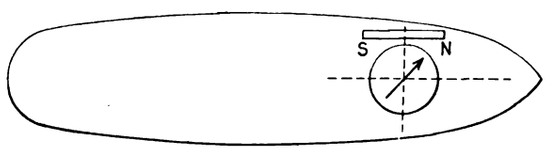


Fig. 2

may be laid down and brought up toward the compass until it corrects the fore-and-aft magnetism of the ship.

Semi-Circular Deviations

The deviations just discussed are known as semi-circular deviations. To explain this term let us admit that the fore-

Generated on 2024-09-12 11:27 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

and-aft magnetism could be represented by a single long magnet forward of the compass with its south end up and the north end at a long distance below. This south end will act as a single point of attraction to the north end of the needle, as shown in Fig. 3, and it will draw the needle toward the east, producing a deviation. If the action begins with the magnet *S* in the north and south line, no deviation will be produced. As the magnet is carried around, the deviation will increase until the magnet is nearly but not quite east of the compass. Going on, the deviation will decrease until it disappears when the magnet is south of the compass. A semi-circular motion thus produces a complete cycle of deviation; the other half circular motion from south to north will produce a similar cycle of deviation to the west. A similar action takes place when a ship swings all the way around from north to east, to south and then to west and north.

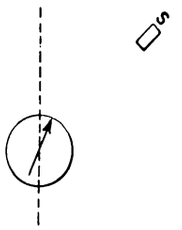


Fig. 3

Bar magnets may be placed forward or aft of the compass or on either side; or both forward and aft or on both sides. Some binnacles are four sided with facilities for fixing as many bars as may be needed. The Ritchie compasses have fore-and-aft and transverse trays in the binnacle, into which magnets can be laid in the proper number; the trays can be raised or lowered to complete the adjustment. The Kelvin compass has small bar magnets in the compass bowl, with screws for adjusting them. In any case the method is essentially the same. The methods all are tentative and any error can be at once detected and corrected.

Quadrantal Deviation

Thus far we have been dealing with permanent magnetism which changes slowly, if at all; but any soft iron bar which lies in a north and south direction immediately acquires magnetism, and it loses it progressively as it swings round toward the east or west. When such a bar lies in the line of the compass needle it has its maximum magnetism, but it does not deflect the needle. When it swings to the east, the south end draws the needle and gives it an easterly deflection which becomes a maximum at about 45 degrees; the magnetic effect

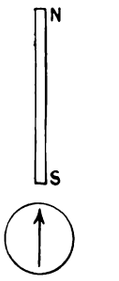


Fig. 4

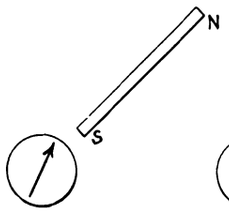


Fig. 5

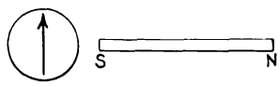


Fig. 6

decreases to zero as the bar swings so as to lie directly east as shown in Fig. 6; it then produces no deviation. As the bar swings toward the southeast the end near the compass acquires north magnetism which draws the south end of the needle to the east and produces a westerly deviation of the north end of the needle. Going on, the bar produces an easterly deviation when it lies southwest of the compass, and a westerly deviation when it lies northwest of the compass. This deviation, due to horizontal iron, is called quadrantal deviation.

Magnetic Effect of Ship's Deck Beams

If two bars are fastened to a frame at right angles with each other they will tend to counteract each other's effect. The more powerful bar will produce quadrantal deviation of its own kind but the deviation will be less. Any system of bars at right angles will in like manner give a resultant effect. The effect of any bar will depend on its length and size and on its proximity to the compass. The deck beams beneath a compass usually have the dominant effect. If a

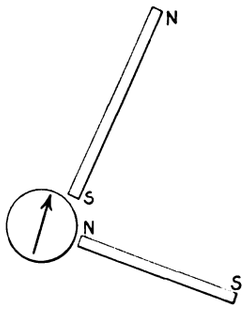


Fig. 7

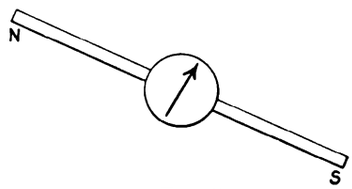


Fig. 8

ship heads to the northeast, the deck beams will lie as shown in Fig. 8 and will produce an easterly resultant quadrantal deviation. The compensation is made by cast iron balls set in slots in a bar carried athwartship on the binnacle as indicated by Fig. 9. These balls have north magnetism at the north hemisphere and south magnetism at the south hemi-

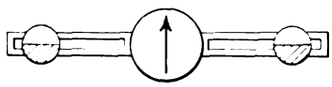


Fig. 9

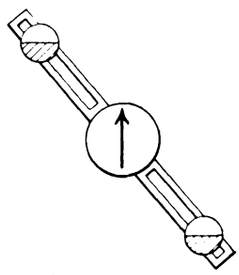


Fig. 10

sphere however they may lie; this has been indicated by hatching the southern hemisphere; the actual balls are painted one color and give no such an indication. In Fig. 9 the balls have no resultant influence on the compass needle because individually they have equal and contrary influence. As the ship swings to the east the port ball, presenting its southern hemisphere to the compass, tends to draw the head of the needle to the west, and the starboard ball presents its north hemisphere and has a similar effect on the south end of the needle. This influence increases with the angle until it reaches a maximum when the ship heads to the northeast as indicated by Fig. 10. The balls thus have a quadrantal effect contrary to that of the beams as shown in Fig. 8.

Correcting Quadrantal Deviation

The quadrantal deviation is corrected after the semicircular deviation has been completed. The ship is put on a quarter bearing, for example it may head northeast; the compensating balls are put in the outer ends of the slots and are moved toward the compass until the quadrantal deviation disappears.

Actual Compensation of a Ship's Compass

To recapitulate: the ship is put on a principal bearing, such as north, as shown by Fig. 1, and a magnet is placed to correct the deviation then shown; the ship is turned through 90 degrees as shown by Fig. 2 on an easterly bearing and another magnet is placed to correct the deviation on that bearing; this completes the compensation for permanent magnetism. The ship is then put on a quarter bearing, as

Generated on 2024-09-12 11:23 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

shown by Fig. 10 and the quadrantal deviation shown is compensated by the balls.

In practice it is customary to test each compensation by reversing the course of the ship. For example, beginning on a northerly bearing and correcting the deviation as directed, the ship is immediately swung through a half circle and put on a southerly bearing; if there is no deviation on this southerly course, that step is complete. But, if there remains a small deviation on this southerly course, it must be reduced.

The first step is to see if the pin on which the needle is supported is eccentric; if so, it should be corrected; usually this point is looked after before the compensation is undertaken. If there is a deviation when the needle is known to be straight and when the compass card is concentric with the compass bowl, the custom is to correct half of it by moving the proper magnet. The ship is then turned around to a north bearing and an observation is made to see if there may be a deviation on that bearing. Perhaps there may be equal and contrary residual deviations on the opposite bearings; in such case the deviation must be recorded and allowed for in the navigation of the ship.

In like manner, if the ship is set and compensated on an easterly bearing, it is swung round to a westerly bearing and the residual deviation is divided between east and west bearings should there be any left. So also after the quadrantal deviation has been made on a quarter bearing, say N. E., the ship is swung round in succession to S. E., S. W. and N. W. to test the compensation; should there remain deviations on some or all of these points an attempt may be made to distribute the deviation; such a distribution is likely to be made only when the quadrantal deviation is very large.

The magnetic influence of horizontal soft iron is greatest near the equator and decreases toward the poles; but as the corrective influence of the balls varies in like manner an adjustment of quadrantal deviation at any latitude should be good for any other location.

It is customary to cast the arms for the quadrantal balls athwartship onto the binnacle for compasses of merchant ships. Warships sometimes have the arms given a little freedom so that they may be given a small angle with an athwartship line. This is to make it possible to refine the compensation and allow for the effect of diagonal members that may come near the compass. Such compensation is not conveniently made by the process here described and no further attention will be given to it.

Magnetic Effect of Vertical Soft Iron

Near the equator vertical soft iron has little or no magnetic influence, but as a ship goes north the vertical iron has greater and greater influence. In the northern hemisphere the lower end of a vertical bar has north magnetism; in the southern hemisphere this is reversed and the magnetism becomes south at the lower end. At any place the magnetism of a vertical bar remains constant and cannot readily be distinguished from permanent magnetism.

In our discussion of semi-circular deviation the effect of vertical iron has been ignored; in effect it has been allowed to go in with the effect of permanent magnetism. If a ship's service is in the middle latitudes of one hemisphere, this practice leads to no difficulty but, if the ship sails to the equator and yet more if she sails to another hemisphere, there should be a separate correction for vertical soft iron.

Compensating Magnetism of Vertical Iron

Commonly a compass is placed amidships and the structure of the ship is symmetrically arranged port and starboard, so that the effect of all the vertical iron is equivalent to that of a single bar on the ship's axis. The resultant effect of vertical iron on a compass in the wheel house is like that of a bar abaft the compass with its upper end on a level with the compass. A compensation can therefore be made by placing a proper bar directly forward of the compass; perhaps on the wall of the wheelhouse. This bar is known as Flinders' bar, named for Captain Flinders of the Royal Navy, who first detected and corrected deviation on certain wooden naval vessels which had iron pillars under the deck beams.

The convenient way of setting Flinders' bar is to wait till the ship comes into port at or near the magnetic meridian, which is located on magnetic charts. An investigation will show that the fore-and-aft compensation of the ship is overdone; that is, the ship on an east or west bearing will show a deviation contrary to that found on such a bearing when the ship was compensated. This deviation can be released by moving back the proper magnet from the compass. The number of degrees may be recorded for action after the ship returns to the home port or to a like latitude. After the return the ship will show a residual deviation on an east or west bearing. A proper soft iron vertical bar may be placed forward (or aft) of the compass to correct this residual deviation. A convenient way is to use a bundle of small rods and add or take away rods till the compensation is complete. When once this compensation has been made it will remain permanently.

It is not necessary to return to the home port to set Flinders' bar. At any port the compass may be taken ashore to some place free from local magnetism. The compass may be set so that the needle reads north; then a bar of soft iron may be brought near to a position such as it will conveniently occupy aboard, and the adjustment may be made by causing a deviation equal to that found aboard but in the contrary direction.

Influence of Iron Below the Compass

There now remains the consideration of the influence of iron or steel below the level of the compass. The resultant influence may be likened to that of a vertical magnet directly under the pin on which the needle is supported. When the ship is in quiet water such a bar cannot produce deviation; but when the ship rolls such a bar would swing from side to side and might give a trivial deviation. Should the time of swinging of the compass needle and its card be the same as the time of rolling of the ship, a troublesome oscillation of the card might be set up. To obviate this difficulty it is customary to provide a vertical permanent magnet under the compass that can be raised or lowered by a chain or other device. When the ship is rolling and the card is oscillating the magnet may be raised or lowered until the trouble disappears. Sometimes such a magnet may be found to be upside down, in which case it is reversed in order to make the compensation.

How to Prepare a Chart of Residual Deviations

After a ship's compasses have been compensated for semi-circular and quadrantal deviations, with or without Flinders' bar and the vertical magnet just mentioned, it is customary to swing ship and prepare a chart of residual deviations.

The ship is brought in succession to regularly distributed bearings; there should be at least eight and preferably sixteen such bearings. If convenient, each of the 32 points of the compass may be used. The ship should be held two or three minutes on any bearing and then the true magnetic bearing should be determined and the reading of the compass taken; this is to allow for the lag of the compass, which is slow in coming to a fixed reading.

It is desirable to place the ship exactly on the desired true magnetic bearings and read the accompanying deviations; it is then easy to make a table of correct and compass bearings for each point of the compass so that the navigator may readily give compass bearings to the steersman, or may make proper correction to his observations. But, if the ship is brought near the proper bearings, a diagram may be made

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

from which a table can be interpolated; or the interpolation can be made arithmetically.

Usually, when compensation has been skilfully made the residual deviations are small and are easily allowed for. If the deviations are large and especially if they are irregular, the compensation should be repeated.

The construction and use of compass diagrams cannot conveniently be represented in this article; details may be sought in text-books.

LOSS OF MAGNETISM

Thus far we have considered that steel has permanent magnetism; but hard steel bars that are specially magnetized are liable to lose magnetism slowly even if provided with keepers. The steel worked into a ship is magnetized by hammering and other work done on it; the amount and kind of magnetism depend both on the amount of work and the direction in which the ship lies on the building slip. When possible the ship should lie in a contrary direction in the fitting slip; the work of fitting may then relieve some of the magnetism.

After the ship has gone into service the magnetism slowly decreases and the movements among waves at sea help along that effect. Ships are likely to have their compasses over adjusted after some time in service; the navigator should have this in mind to avoid inconvenience or even disaster. The magnetism so lost in service is known as sub-permanent magnetism.

RETENTIVE MAGNETISM

If a ship lies in an approximate north and south position in port for several days, it is likely to acquire retentive magnetism amounting in some cases to two or three degrees. The captain of a certain ship coming out of Baltimore was accustomed to make an allowance for such retentive magnetism when coming out. Such an error might easily lead to grounding of the ship, if uncorrected. After some hours at sea retentive magnetism may entirely disappear. Retentive magnetism may be detected by taking the bearing of some convenient point on arrival at the dock and again just before sailing; any change is likely to be due to that cause.

It has been tacitly assumed that a ship may readily be placed on any magnetic bearing or any desired succession of bearings; the methods of accomplishing such a purpose have been purposely reserved for consideration to avoid confusing the obvious methods of compensation with the detail that may now be stated separately. There are several methods that may be employed as convenient.

METHODS OF PLACING A SHIP ON MAGNETIC BEARINGS

At some docks magnetic bearings are marked by lines painted on adjacent buildings or by some other method. Such a device is more convenient for checking the condition of compasses than for making compensation.

If a ship at anchor swings entirely round with the tide, or if it can readily be made to swing round, opportunity can be taken to compensate the compasses or to note and record residual deviations. The inconvenience is that it takes a considerable time and that the swinging is irregular and may be too rapid at certain stages of the tide. The swinging may be controlled in part by springs on the cable.

A very convenient way of locating the various magnetic bearings, such as north, east, etc., is by taking bearings of some distant object such as a church steeple or any easily identified point, for which the true magnetic bearing may be known or can be obtained. Bearings can be taken by aid of a metallic ring that fits on the compass bowl and carries sight vanes. The sight vanes may have simple vertical slots or there may be one slot to peep through and a wire in a wide slot to aid in setting on the object in question. The object chosen must be far enough off so that the bearing will not be sensibly changed by the swinging of the ship; four or five miles is usually enough. If the bearing is unknown it may in some cases be found by sending a compass ashore and placing it so that it, the ship and the steeple (for example) are in one line. If the water is very quiet, it may be possible to get the bearing by aid of a compass in a small boat that can be placed in line with the ship and the steeple. Or, if the ship swings completely round and if bearings are taken at regular angular intervals, the true magnetic bearing can be found by taking the algebraic sum of all the apparent bearings.

RECIPROCAL BEARINGS

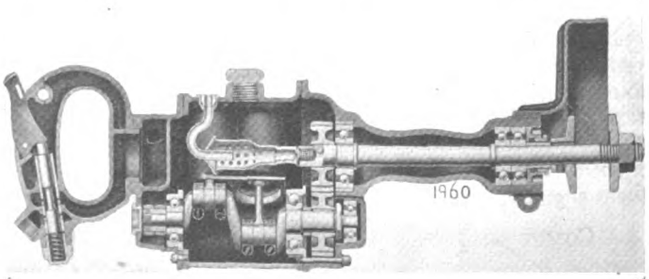
If it is convenient to send a compass ashore, the method of reciprocal bearings will be found rapid and easy. An observer aboard may take a bearing of the compass ashore and at the same time an observer at the shore compass may take a bearing of the compass on the ship. The shore compass should be free from local magnetic effect and will give a true bearing, which is opposite to the true bearing from the ship. Suppose the shore compass gives S. W. for the bearing of the ship compass; the true bearing of the shore compass will be N. E., or N. 45 degrees E.; suppose the observer aboard reads the bearing N. 50 degrees E., there then will be an easterly deviation of 5 degrees. It may be convenient to employ a tug to push the ship around; the tug, and especially its smokestaff, is liable to have magnetic effect and must be kept away from the compass under observation.

The most common way is to take the ship outside the harbor and steam it around onto desired bearings which are identified by taking observations on the sun. The observation most conveniently made is the altitude of the sun above the horizon by aid of a sextant; but by aid of prepared tables the azimuth of the sun can be taken or interpolated for the date and hour of the day. By the azimuth of the sun we mean its angular distance from the true or geographic north. Allowing for the magnetic variation the correct magnetic bearing can readily be identified, to which the ship may be brought by steaming around slowly. The idea is simple enough, but the application together with the use of tables may be best learned from a competent compass adjuster.

This article has purposely been written in a sketchy manner to avoid complexity and garrulity. Perhaps the reader may be able to make the compensation of a compass under simple conditions, perhaps it may aid in understanding compensations as made by an expert or perhaps it may lead to reading more ambitious presentations of this important and interesting matter.

Oil Separator for Air Grinders

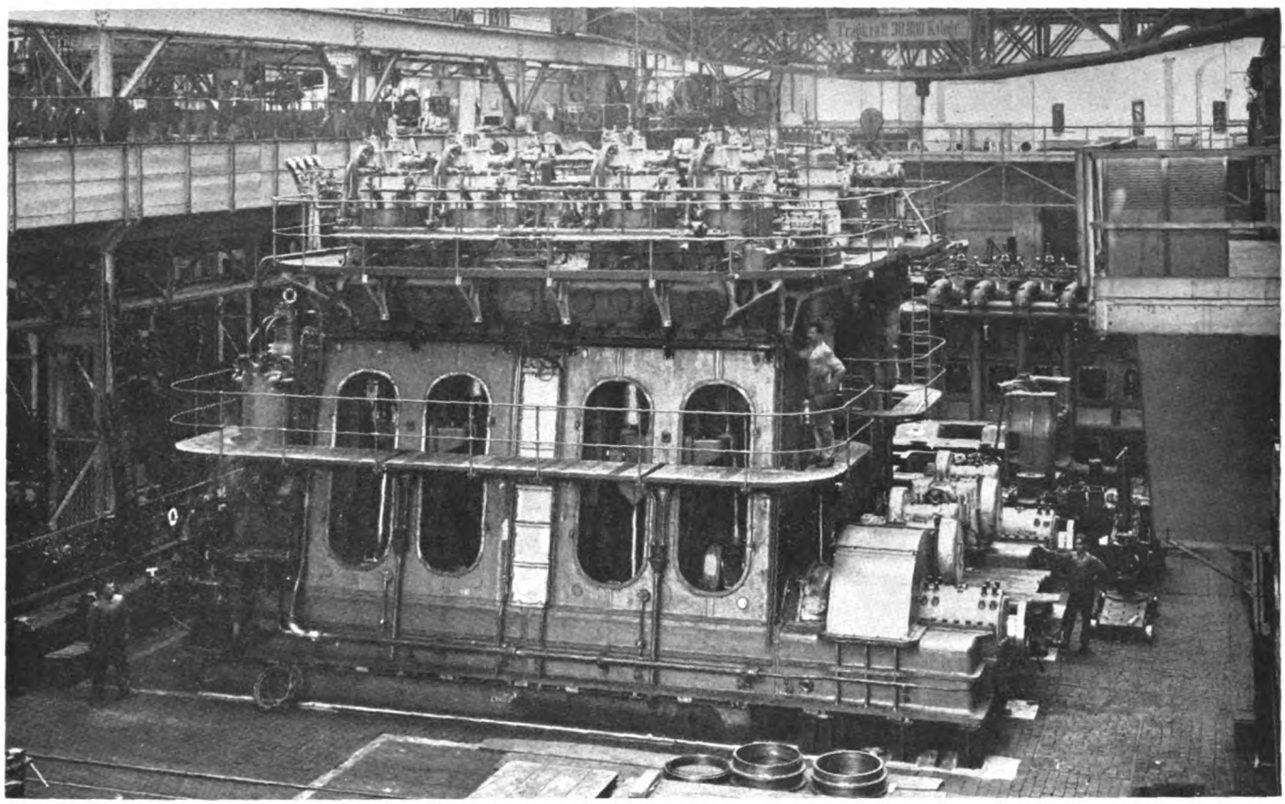
To permit air grinders to operate for long periods without replenishing the supply of lubricant, the Chicago Pneumatic Tool Company, Chicago, Illinois, has designed an oil separator which is applicable to "Little Giant" air grinders.



Oil Separator Applied to "Little Giant" Air Grinder

The oil separator consists of a hollow perforated cylindrical steel shell attached at one end to the grinder spindle while the other encircles and revolves around the vent tube.

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Two 2,000 Brake Horsepower Sulzer Diesel Engines Erected in the Builders' Shop Preparatory to Installation in a 11,500-Ton Ship

Four Cylinder Two Cycle Sulzer Engine

Designed to Develop 2,000 Brake Horsepower at 100 Revolutions Per Minute—Turbo Scavenging Pumps Used

By Our Special London Correspondent

SHIPOWNERS, recognizing the advantages of motorships over steamers in present circumstances, are continually demanding of the builders that oil engines with higher powers should be developed. In addition there is a more general request for single screw ships which the average shipowner prefers, at any rate in moderate powers. Two main tendencies are therefore to be noted in European marine engine design: first, the production of motors with larger specific cylinder output, and secondly, the construction of slow running and consequently long stroke engines specially adapted for the slow speed of propeller rotation required in these vessels for maximum efficiency.

The greatest advance in the development of high powered engines has been made by Doxfords, whose four cylinder opposed piston engine with cylinders 580 millimeters bore and stroke of 1,160 millimeters now develops approximately 4,000 indicated horsepower or 1,000 indicated horsepower per cylinder. This is essentially a motor for installation in single screw ships running as it does at 77 revolutions per minute. Not to be outdone in this direction, the builders of four cycle engines are showing similar activity. Burmeister and Wain, which has already standardized a 3,200 indicated horsepower eight cylinder set running at 115 revolutions per minute for twin screw vessels, has now produced a long stroke design running at 85 revolutions per minute for single screw ships. An order has just been placed for the largest engine of this type yet constructed which will develop 3,200 indicated horsepower but at the lower speed of revolution.

New Sulzer Developments

Sulzer Bros. is also progressing along the same lines and has just completed the two largest sets of the single piston two stroke type which have yet been built for marine work. An illustration of these engines erected on the test bed is given and they will shortly be installed in the 11,500 ton motorship *Camramh* now under construction for a well known French shipowning firm, the Chargeurs Reunis.

A still larger set developing 3,500 brake horsepower in six cylinders is under construction, the diameter of the cylinders being about 36 inches and the stroke just under 48 inches. This latter engine is for installation in a large ship for the North German Lloyds and it is an indication of the ideas of the designers that plans for the construction of a 5,400 brake horsepower six cylinder Sulzer engine have been prepared. Two of these sets will shortly be laid down for installation in a large liner and it may be noted that the cylinder diameter is 900 millimeters and the stroke 1,550 millimeters—dimensions far in excess of any that have yet been used. It may be added that the overall length is 63 feet and the total height 25 feet.

Returning to the 2,000 brake horsepower engines, these are designed to run at 100 revolutions per minute developing

Generated on 2024-09-12 11:58 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

1,700 brake horsepower at 85 revolutions per minute. The cylinders have a bore and stroke of 680 millimeters and 1,200 millimeters, respectively, and it will be noted that the scavenging pumps are not direct coupled. Sulzers have in fact now standardized a system for all engines over about 1,000 brake horsepower by which the scavenging air is supplied from separate electrically driven turbo scavenging pumps. The object of this arrangement is to give additional shaft horsepower for given cylinder dimensions, while there is a slight reduction in weight and the designers consider that the method is generally more convenient. A small saving in overall length is also effected. A single three stage air compressor is driven at the forward end of the engine while at the same end are lubricating oil and circulating water pumps.

Cast Iron Framing Supports Cylinders

Although originally Sulzers adopted the steel column construction for supporting the cylinders and this has later been taken up by numerous Diesel engine builders, it is not used in the latest Sulzer motor. The cylinders are supported on heavy cast iron framing with large doors on the front which are removed in the illustration showing that easy access is available to the crank chamber.

The usual Sulzer system of port scavenging with a super charge of scavenging air admitted via a camshaft controlled valve through a series of auxiliary ports above the main scavenging ports is employed, which the makers claim enables them to maintain a high thermal efficiency; this seems to be borne out by the fact that on trials a fuel consumption of 0.398 pound per brake horsepower hour was attained.

Single Valve Cage in Cylinder Head

In each cylinder cover are arranged the fuel inlet, the starting and the relief valves. By a very neat design, these are all incorporated in one cage, so that only one hole has to be bored centrally in the cover, allowing a very strong construction to be adopted with ample and unrestricted cooling passages. A peculiarity of the engine is that the controls for maneuvering and reversing are located at the top of the cylinders although this is of course not essential. The builders, however, consider it advantageous since most of the running gear is located at this level.

Reversing is carried out by the provision of two cams and rollers for each fuel and starting valve respectively, the ahead cams being brought in contact with their rollers or the astern cams with the astern rollers as desired by the operation of the control levers.

A refinement of some value on high powered Diesel engines is the control of the amount of injection air admitted to the fuel valves at varying speeds.

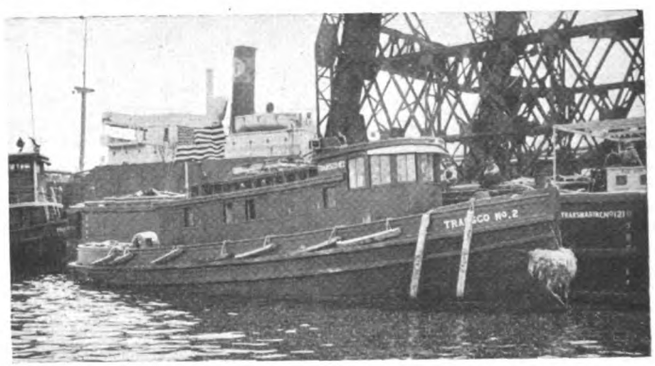
Diesel-Engined Tug for New York Barge Canal Proves Economical

WITH the completion of the *Transco No. 2*, the first of three Diesel-engined tugs to be placed in service this year on the New York State Barge Canal by the Transmarine Corporation, an opportunity is given to compare the relative advantages of Diesel-engined and steam driven tugs.

The *Transco No. 2*, which was built by the C. Hiltebrant Dry Dock Company, Port Ewen, New York, is 67 feet 6 inches long and 17 feet 6 inches beam. Propulsion is by a heavy duty, four cycle, reversing gear type, Nelseco Diesel engine supplied by the New London Ship and Engine Company, Groton, Conn. The engine has eight working cylinders, 9 inches diameter and 12½ inches stroke, and develops 240 horsepower at 350 revolutions per minute.

Trials of the vessel were conducted on May 14, consisting of a run on the Hudson River from Kingston to Albany where she was to enter the service of the Transmarine Line. On this run a speed of 11.3 miles per hour was attained on an average fuel oil consumption of 10½ gallons per hour and an average lubricating oil consumption of 0.45 gallon per hour.

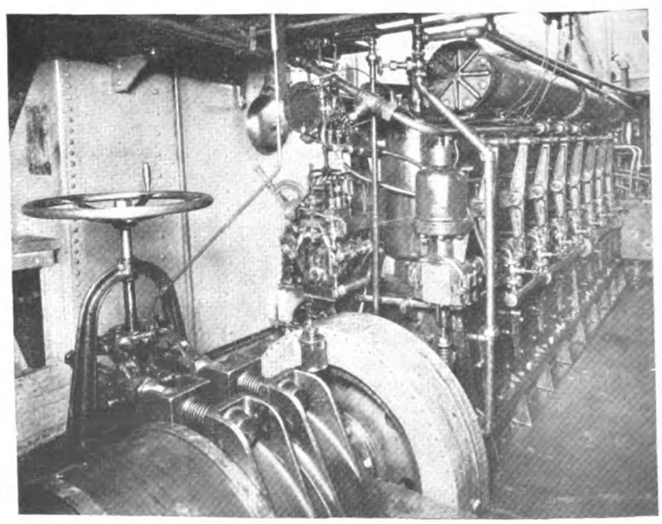
On May 16 the vessel took a tow of five barges at Albany and proceeded up the canal. Meeting an eastbound tow at Little Falls, the tugs were changed and the *Transco No. 2*, taking the eastbound fleet, arrived at Pier 6, East River,



New York Barge Canal Tug Fitted with Diesel Type Propelling Engine

New York, about 6:00 P. M. on May 23. A day later she left New York with a tow of five barges bound for Buffalo.

On steam tugs of the size suitable for use on the canal, it is necessary to stop for fuel about once every 24 hours. On actual test it was found that the cost of fuel for operating the *Transco No. 2* with her tow averages about 60 cents per hour; while steam tugs of similar horsepower, with the cost of coal at the present price, runs about $4.00 per hour. The time saved by avoiding the frequent stops for taking fuel and disposing of ashes is considerable and the fact that the



240 Horsepower Nelseco Diesel Type Engine on Tug Transco No. 2

tug is ready for operation at full load in one minute after word is given are features of great importance as well as the fact that no time is lost due to low steam pressure when cleaning fires.

With this type of Diesel-engined tug, operating at something like 15 percent of the fuel expense of a steam tug and with approximately 250 percent more power available than in the steam tug, not only can higher towing speeds be obtained but also the barge fleets can be more effectively controlled when maneuvering.

Generated on 2024-09-12 11:55 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

System in Shipbuilding

By O. D. Treiber*

This article describes a method of controlling the productive elements in a shipyard where, due to the many varieties of work performed, an intelligent and practical system of management is of the utmost importance.

IT is no easy matter to control the activities in a large shipyard in such a manner that an adequate return in production is secured for the money paid to about forty-five classes of workmen which make up the twenty-five to thirty departments comprising a modern plant.

Such a control is highly essential, however, in order that the thousands of operations necessary to the construction of a modern ship may be properly coordinated with a view to attaining the maximum efficiency. Proper control is also desirable as a means of following the progress of the work at all times, thus insuring its completion within a time allotted and permitting the preparation of an accurate financial statement at any time or stage of the construction period.

The shipyard in which the work has been systematized to accomplish the above results in a sound, practical manner is conducting its business on a solid basis and is undoubtedly assured of steady work regardless of how keen competition may become.

The following system was developed by the author and successfully applied in the administration of a yard in which ships aggregating a total cost of ninety million dollars were constructed.

In developing this system the aim was to devise a method of control which would be simple and effective, which would be economical in installation and operation, flexible enough to expand and contract with the business in hand without confusion and which could be gradually introduced in an established yard without disrupting the organization or work under way during the time of its inauguration.

Principal Plant Divisions

Under the system of administration hereinafter described, the plant is divided into four principal divisions known as the sales, accounting, material and production divisions. In view of the fact that this article is intended to deal principally with the production problems met with, the sales and accounting divisions are not discussed and the material division, which has such an influence on production, is taken up only in so far as its functions affect the production division.

Organization

As the organization of a plant is usually built to suit the ability and capacity of the executive and departmental heads, to which is entrusted the carrying out of the firm's policies, no fixed rule can be established which will be applicable to all cases.

The system which follows, however, is such that it may be applied to any form of organization.

Of great value, in any event, is the construction of an organization chart defining graphically the duties, authority and responsibility of all executives, department heads, foremen and assistant foremen. A chart of this nature will insure that every person in the organization knows to whom and for what he and all others are responsible and will prevent the overlapping of authority which is so often the cause of many operations being neglected because of no definitely placed responsibility. By this means a great deal of misunderstanding and shifting of responsibility, with attendant confusion, is eliminated and a great deal of the trouble that makes systematic production difficult avoided.

Material Division

The material division is charged with the purchase and follow up of all material, receiving, storing and disbursing, material ledger accounts and the adjustment of excessive, deficient and damaged material accounts. It should be supervised by one man who has no other responsibility and can give his entire time and thought to perfecting his organization so that it will function correctly and efficiently.

The activities of the material division are divided among several departments, as follows:

A purchasing department which places the orders for all material.

A follow-up department charged with taking care of deliveries, cancellations and replacements, changes in routing and the adjustments of differences in material accounts.

A receiving department which receives all material and dispatches it to the proper store, checking the material delivered against the invoice and purchase order and reporting any discrepancies to the ledger and follow-up departments.

A store department which is responsible for the proper storage and care of material and also for its delivery to the production division when required.

A ledger department which is held strictly accountable at all times for records showing the status of material ordered, the kind, grade, size and quantity of material on hand, where it is stored and what portion is reserved, with specific information relative to the job for which such portion is reserved and the date it will be required.

The ledger department is the principal department in this division. It is the only place from which material is issued to the workmen or from which information about material may be obtained. The ledgers should be kept in one office centrally located in the plant and there should be a ledger for each class of material. The system is such that this work can be done by one man or divided among a number, determined by the volume of business in hand.

Procedure Followed in the Material Division

Bills of material are prepared in the drawing office and sent to the planning department where notations are made against each item stating whether it is to be made in the plant or purchased already finished and the date it will be required. These bills of material are then sent to the ledger department of the material division where each item is checked in the ledgers. If the material is found to be on hand it is so indicated on the bill of material in a column provided for that purpose and a note made in the ledger that the material is reserved, giving the bill of material number, job number, amount required and the date it will be needed by the production division. If the material is to be purchased it is so indicated on the bill of material and is posted in the ledger as material to be purchased, notation also being made showing the bill of material number, job number, amount and the date required. These bills of material are then blueprinted and copies sent to the purchasing department, receiving department and to all the departments in the production division that will be concerned.

*Naval architect and shipbuilder of Alameda, Cal.

Generated on 2024-09-12 11:23 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

	DEPARTMENTS	Mon. 8/2	Tue 8/3	Wed 8/4	Thu. 8/5	Fri. 8/6	Sat. 8/7	Mon. 8/9	Tue 8/10	Wed. 8/11	Thu. 8/12	Fr
1	Ship Fitters											
2	Shipwrights											
3	Ship Carpenters											
4	Joiners											
5	Painters											
6	Bolter Ups											
7	Drillers and Reamers											
8	Riveters (Complete Gangs)											
9	Chippers and Calkers											
10	Packers											
11	Tank Testers (Complete Gang)											
12	Cleaners											
13	Ship Riggers											
14	Electricians											
15	Machinists (Outside)											
16	Pipe Fitters (Including Shop)											
17	Copper Smith (Including Shop)											
18	Sheet Metal (Including Shop)											
19	Pipe Coverers											
20	Brick Layers											
21	Tile Setters											
22	Plate Hangers											
23	Yard Riggers											
24	Cork Insulators											
25	Trial Crew											
26	Machine Shop (Items only)											
27	Boiler Shop (Items only)											
28	Forge Shop (Items only)											

Fig. 1

The purchasing department places purchase orders for the items specified in the bills of material. The dates that the materials will be required, which are noted on the bill of material, are guides for placing orders so that such material will be available when needed and at the same time guarding against the accumulation of material in the plant that will not be needed for a long time and tying up capital with a possibility of loss through depreciation in value. Copies of purchase orders are sent to the ledger department and receiving department. At the ledger department the purchase order number, date it was placed and the date the material should arrive are posted in the ledgers.

The purchase order is then placed in a calendar file so that it will be brought automatically to the attention of the follow-up department in order to insure prompt deliveries.

Should the follow-up department engage in correspondence relative to material ordered, copies of such correspondence are given an identification number and placed in active file. The identification number is entered in the ledger and on the purchase order in the calendar file, so that complete information regarding material is available at all times from the ledger or the calendar file.

Material arriving at the plant is received by the receiving department, where it is checked against the invoice and the purchase order. Any differences between the invoice or purchase order and the material received are reported to the ledger and the follow-up departments for action.

The material is then dispatched to the proper sectional store and the invoice and purchase order sent to the ledger department where the receipt of the material is posted in the ledger with the place of storage. If the material checks with the invoice and purchase order, the ledger clerk removes the purchase order from the calendar file and the correspondence from the active file and places them in an inactive file for future reference should occasion require. The purchase order and invoice, which the receiving department used for checking the material, are then dispatched by the ledger department to the accounting department for payment.

Store orders are made in quadruplicate by the production division. One copy is retained by them and the other three are sent to the ledger department where the items are looked up in the ledgers to ascertain whether the material is on hand and, if so, in which store it is located. This location is indicated on the three copies by the ledger man who signs them, keeps one copy and sends the other two to the proper store where the order is filled. The storekeeper delivers the material and secures the signature, on these two orders, of the party receiving it. He then signs them himself and sends one copy to the ledger department, keeping the other as his order and receipt for the delivery of the material. The ledger clerk checks this returned copy with the one kept by him when he first endorsed the order and after checking off the material in the ledger sends the store order to the accounting department.

SHOP FINISHED ITEMS NO. .....

Date Required .....

Drawing No. ..... **B. M. No.** .....

When Finished Send to .....

DESCRIPTION

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

O. K. .....
Planner

NOTE—Send this card to the planning department when the item is finished.

Fig. 2

This system of issuing material entails a minimum of routine and at the same time prevents material being checked out of the ledgers until it has actually been delivered and receipted for. It also permits any disputes, mistakes or irregularities to be quickly and accurately traced.

PRODUCTION DIVISION

The production division includes the planning department, drawing office, all shops and crafts, power, maintenance, extensions and betterments, tools, machinery and equipment, employment and welfare; in fact this division includes all the activities in the plant which contribute to production except those in the material division as outlined in the paragraphs above.

The greatest losses occur in a plant from labor inefficiency caused, in a large measure, by incompetent foremen, lack of

Generated on 2024-09-12 11:25 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

SHOP CARD NO. .....

Machine, Group or Dep't.....

Dr. No.....B. M. No.....

Pattern No.....Material.....

Starting Time.....Finishing Time.....

Name and Number.....

.....

INSTRUCTIONS and Operations	Feed Amt.	Speed Amt.	Time Req.
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

SKETCH

Total Time.....

No. Pieces.....

Total Time .....

Rate .....

Amount .....

When Finished Send to.....

Signed....., Rate Setter

Fig. 3

JOB CARD NO.....

Dept. .....Foreman .....

Starting Time.....Finishing Time.....

Time Actually Started (PUNCH).....

Time Actually Completed (PUNCH).....

No. Men Required.....Time Required.....Total Hours.....

Total Amount.....Ratios.....

No. of Pieces.....Rate.....

Dr. No.....B. M. No.....Shift.....

Hull No.....Charge No.....

INSTRUCTIONS

.....

.....

.....

.....

.....

.....

.....

Assigned to.....Number.....

.....

.....

.....

.....

Complete and O. K.

Foreman.....

Fig. 4

material, lack of inter-departmental cooperation, unbalanced department organization and indifference on the part of the workmen, due to lack of definite instructions as to what to do, when to do it and how to do it.

Responsibilities are also very often assigned to foremen for work which should not properly come within their jurisdiction and which it is impossible for them to supervise efficiently. The following method of administration is designed to overcome these losses with a view to maintaining harmony and efficiency in the plant.

PLANNING DEPARTMENT

All the activities throughout the plant which involve direct labor expense are directed, scheduled, rated, coordinated and controlled by the planning department which determines in advance when and how every operation that contributes to the production of a vessel will be done. This department is by far the most important one of all those in the production division.

In about the same manner that the detail plans for a design are prepared and made to coincide in the drafting room, so is the construction planned in the planning department, with a view to coordinating the work in all departments and insuring orderly progress.

This planning is done for all departments in one office, centrally located, by men who are rated as departmental executives. Their work actually directs and controls production. They are therefore held responsible for the efficiency of their respective departments and their authority is in keeping with this responsibility.

SPECIAL EQUIPMENT FOR PLANNING OFFICE

To facilitate the work of the planning office a card rack is provided which is known as a calendar file. It is made as shown in Fig. 1 with pockets to take cards such as shown in Figs. 2, 3 and 4. These pockets are made in sections of six in a row, arranged to fit in slides on a large frame. The sections may be removed from the slides at the left and inserted again at the right, moving all sections to the left when one is taken out. Each vertical row of pockets is for one day and each section for one week, consequently there is one section to be removed each week. There should be twelve to fifteen sections representing that many weeks, but in some cases more sections will be of benefit. Vertically the rows are arranged for the different departments and foremen, as shown in Fig. 1.

A similar calendar file is provided for the office of each department or foreman with rows of pockets for a machine,

Generated on 2024-09-12 11:26 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

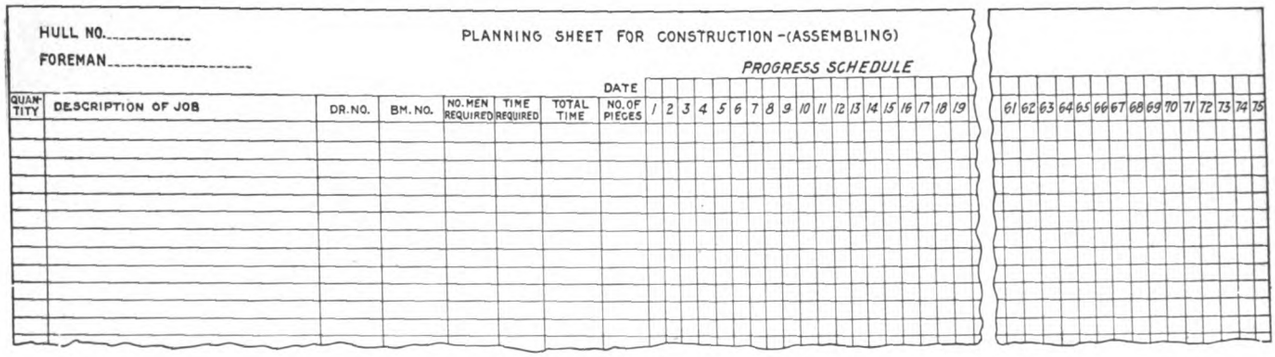

HULL NO.
FOREMAN
PLANNING SHEET FOR CONSTRUCTION-(ASSEMBLING)
PROGRESS SCHEDULE
DATE
QUANTITY
DESCRIPTION OF JOB
DR. NO.
BM. NO.
NO. MEN REQUIRED
TIME REQUIRED
TOTAL TIME
NO. OF PIECES
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75

Fig. 5

group of machines, branch or section of the department, man, gang or squad.

Many of the departments will not need more than one row of thirty or forty pockets.

Application of the Planning System

For the purposes of the planning department the work entering into the production of a vessel is divided into two principal classes, manufacturing and assembling.

Manufactured jobs are those covering specific articles or items made in the pattern shop, foundry, machine shop, forge shop, boiler shop, joiner shop or sheet metal shop. These jobs represent such items as hawse pipe pattern, hawse pipe casting, fore foot casting, steering engine, ballast manifold, forged stanchions, boiler, clothes locker, berth with drawers, sheet metal vegetable locker, etc.

Assembling jobs are those done throughout the yard, assembling parks, building slips, fitting out wharf, pipe shop, copper shop, anglesmith's shop and plate and angle furnace shop. They represent specific portions of work to be done by a man, gang or squad and the work is such that the artisan will not be interrupted from the time he starts until the job is finished. In other words, the work can be completed by one man or gang without depending upon assistance from several different crafts.

These assembling jobs may be such as laying down, fairing up and scrieving in the forebody on the loft floor, to be complete in every respect including plate edges; laying cut holes in tank top and bulkheads for bilge, ballast and fuel oil piping; installing boiler mountings; bending and fitting main steam pipes; setting up keel and bilge blocks; riveting bulkhead number 54, including clips, stiffeners, brackets and flanges of bounding bars to bulkhead; boring stern frame for stern tube, etc.

Assembling jobs are charted as shown in Fig. 5, the work of each foreman being listed on a separate sheet. Estimates of the time needed and the number of men required are indicated in the proper columns at the left. The period during which the work shall be done is next indicated by an X in the squares at the right under the dates the job should start and finish. The assigning of the jobs to a date or period is done so that the work in all departments will be undertaken in proper sequence and at such times as will meet the demand for efficiency and economy in production.

Manufactured items are charted as shown on Fig. 6, and assigned dates for completion similar to the assembling jobs. These dates must agree with the assembling charts which have already been made out. Duplicate cards as shown in Fig. 2, are then prepared for each manufactured job or item. One of these is filed in the planning office calendar file under the date the item should be finished and ready for assembling and the other is sent to the department that will do the work. When the item is finished, the shop card is returned to the planning department serving as a notice that the work is done.

The manufactured items are then subdivided into specific jobs for a machine, man, gang or squad, and these jobs written on cards as shown in Fig. 3, four cards being provided for each job. One of these cards is typed on the face of an envelope, which serves as the original, the duplicates being obtained by inserting them in the envelope with carbon paper between. On these cards the jobs are broken up into operations and the allowable time for performing each operation indicated at the right. The cards also show a description and sketch of the part to be made with instructions in detail, the date to start and finish, drawing number, bill of material number, machine number or department to which the job is assigned, rate, amount, location of material needed, and where the item is to be sent when finished.

One of these cards is filed in the calendar file in the planning office under the date the job is to start and on the row for the shop or department to which assigned. The other cards, including the one on the face of the envelope, are sent to the department assigned the work where they are filed in a calendar file under the date the job is to start and on the row for the machine, group of machines, department branch, man, gang or squad that will carry it out. The

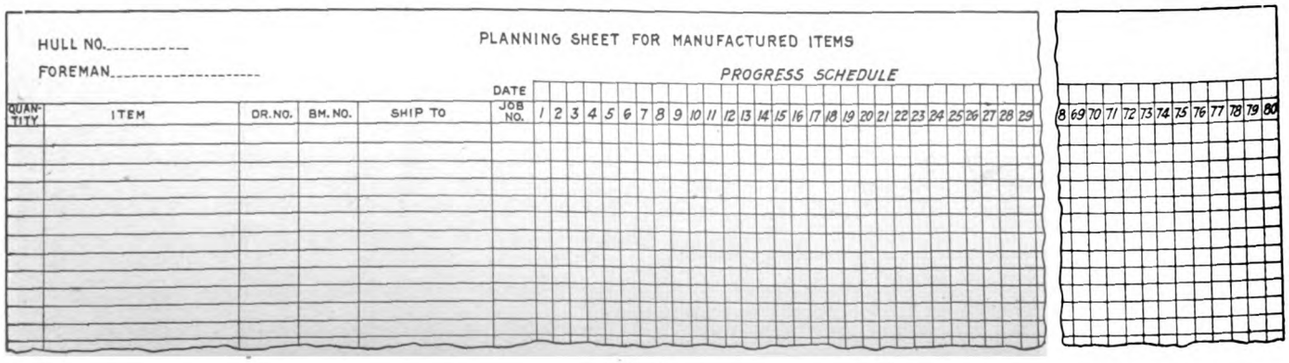

HULL NO.
FOREMAN
PLANNING SHEET FOR MANUFACTURED ITEMS
PROGRESS SCHEDULE
DATE
QUANTITY
ITEM
DR. NO.
BM. NO.
SHIP TO
JOB NO.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
68 69 70 71 72 73 74 75 76 77 78 79 80

Fig. 6

Generated on 2024-09-12 11:29 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

foreman then has his work laid out for him well in advance and assigns the jobs to the workmen in the sequence that they come in the file which conforms to the order laid out by the planners. No harm will result from doing these jobs ahead of schedule dates, but delays are likely somewhere in the plant if a job is not finished on schedule time. The foremen are held responsible for completing work on time and for advising the planner of any delays that seem likely to occur, the necessity for progress men being eliminated in this way. By the above means, the foreman in charge of the men has written instruction in the form of job cards of what to do, when to do it and how to do it. The foreman that cannot follow up these job cards or orders should be replaced.

After the assembling jobs are written on the charts as previously described, they are also written on job cards as shown in Fig. 4. The original is made on the face of an envelope, as described for the manufactured items, copies being provided for the foreman directly in charge of the work, for the planning department, and one copy for each workman. The original on the envelope is for the time-keeping department. These job cards show a description of the job with such instructions as may be necessary to have the foreman and workman understand exactly what is required. The card also shows the name of the foreman responsible for the work with his department symbol, the date to start and finish the job, the number of men required, compensation rate and time allowed to do the job, number of pieces, drawing number and bill of material number. Spaces are provided on the card for punching the starting and finishing time and date with a time clock, and for indicating the amount of time actually taken to do the job, amount of bonus, the workmen's names and numbers and for the signature of the foreman under a printed statement that the job has been completed according to instructions.

The job card for the planning department is filed in the calendar file on the row of the department responsible for the work and under the date the job should be started. The other copies, including the original, are dispatched, with material orders necessary, to the office of the department which will do the job and filed in a calendar file under the date the job should start. These calendar files do not need more than thirty or forty pockets, and for small departments the cards may be filed in an ordinary folder such as a letter file. In this manner the work is arranged for every department and the foremen know exactly what to do and when to do it in order to keep things moving according to schedule and prevent delays which are liable to upset the work of other departments. The foremen are held strictly responsible for completing work on time and for advising the planner immediately should delay from any cause seem likely.

TIME-KEEPING SYSTEM

As the direct labor charges form a large percentage of the cost of work, no system will function satisfactorily unless means are provided for accurately keeping track of and following up these charges. The following, therefore, is an important part of the system.

A time card is provided for each man each day with his name and number printed thereon. It is put in a case at the entrance gate before the workman arrives. This card is a three part card made as shown in Fig. 7, so that it can be cut in three parts.

The first part is for the time-keeping department and shows the man's name and number, the symbol of the department in which he works and spaces in which to punch the time and date of entering and leaving the yard; also the job card number, actual number of hours worked during the shift, date, time of starting and finishing and the foreman's name under whose supervision he comes.

The second part is for the accounting department and shows the date, workman's number and department symbol, number of hours worked, rate, amount and the charge number or symbol.

The third part is for the planning department and shows the workman's name, number and department symbol, number of hours worked, rate, amount, number of job card to which the time is charged and the dates or periods the job was scheduled by the planning department to start and finish.

When the workman enters the gate at the beginning of a shift he removes his card from the case and punches the time with a time clock. He then turns the card in to his foreman or shop timekeeper, who fills out the blank spaces during the shift and returns it at the end of the shift. The workman then punches the card with the time clock as he passes through the exit gate and leaves it in a box for the timekeeping department which cuts the card into the three parts and sends each part to the department where it belongs. The parts for the timekeeping and accounting departments are cared for in a manner quite well known and not covered here. The part for the planning department is put into the job card envelopes in the calendar file, these envelopes having been returned from the foremen's offices when the job was assigned to the workmen as described below. The planning department, therefore, has a complete record of the time and cost of each workman on every job.

Dept. No..... Name.....

.....

Punch Time and Date

Entered .....Exit .....

Job Card Number.....Total Hrs.....

.....

Punch Time and Date

Starting .....Fin'shing .....

O. K.....

Foreman.....

Dept.....No.....Date.....Chg. No.....

No. Hrs.....Rate.....Amount.....

Dept. .....No. .....Name .....

Job No.....Sequent Dates.....

No. Hrs.....Rate.....Amount.....

Fig. 7

Generated on 2024-09-12 11:26 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

CARRYING OUT THE WORK

The jobs on file in the offices of the foremen or departments are assigned to the workmen in the sequence in which they appear in the file, but not necessarily on the date as long as it is possible to do the job advantageously and causes no interference with other departments. However, care should be taken that they are started, and particularly finished, by the dates given as failure to do this might cause delay in some other department and have more or less bearing on the delivery of the vessel. The foreman in charge of the men assigns these jobs and is responsible for having them completed on time or for advising the planner of any possible delays in time to rearrange the schedule.

When a job is assigned the workmen's names and numbers are written on the cards and the starting time and date punched on them and also on the workmen's time cards and the foreman retains his copy as a memorandum of the work being done under his supervision. The original on the envelope is sent to the planning department where it is filed in the calendar file with the copy already in the file as described above and serves as a notice that the job is started.

The receipt of time cards should immediately follow and these are placed in the job card envelopes each day. These time cards are evidence that the work is progressing and will also quickly show up any excessive charges against a particular job.

Each day the job cards in the calendar file are moved one pocket or one day ahead. If there is a planners' copy of a job card in the file under the previous date that has not been inserted in an envelope, it is noted at once and in this way the progress in any and all departments automatically shows up.

Upon the completion of the job, the foreman inspects the work to see that it is done properly, then signs the workmen's job cards and his own. The workmen retain their job cards to present to the paymaster for payment and the foreman sends his copy to the planning department where it serves as a notice that the job has been completed. The job card envelope is then taken out of the file, the actual amount of time and money expended is totaled up from the time cards in the envelope. These totals are then written on the planner's copy of the job card and filed away for reference in planning and estimating the cost of new work. The totals are also written on the envelope sent in by the foreman and it is then dispatched to the time keeping department. After checking the figures and computing bonuses, the time keeping department reports to the paymaster the amount due the workman when he presents his job card.

COMPENSATION

The character of work carried on in a shipyard is such that a uniform system of compensation, except that based on hourly or daily rates, is practically impossible. Hourly or daily rates are not conducive to economy and while piece-work prices can be established in many cases, there are others where such a basis is most difficult to apply. Hence, there are usually a number of methods applicable to work in different parts of the plant, the particular method in each case being determined by the operations involved.

Among the methods for compensation successfully applied with the system outlined are the direct bonus, time bonus, split time bonus, contract, piece work and piece work in berths.

Berthing is very well applied in the construction to bolting up, drilling and reaming, riveting, chipping and calking, packing, painting and cleaning. Berth means location or place and berthing is locating or assigning a specific place or part of a vessel to a man, gang or squad to complete in the sequence in which it is planned and in a manner that will not require any going back for small portions of the work carelessly left unfinished, as odd jobs are expensive after the workman has gone to some other part of the vessel or yard.

The standard form of job card is used for berthing and the workmen are held responsible for the completion of their berth.

The foremen directly over the men receive bonuses based on the amount of bonuses paid the men under their supervision and are penalized for passing any work that has to be done over in whole or in part. It is therefore in a foreman's interest to have his men attain the highest efficiency possible consistent with satisfactory work.

The planners are men of high standing in whom great confidence is placed, though perhaps not more than is usually placed in a department head of a large organization. These men should receive bonuses based on the earnings of the company because they exert a great influence on efficient and economical production.

The bonus for some work should be based on bonuses paid for other work upon which it is dependent. Such a job may be the lining up of boilers which is done by machinists while the work of putting the boilers in place is done by riggers who cannot clear away their gear until the boilers are permanently located.

The machinist has very little work to do, but he can cause a lot of delay if he is not on hand with the necessary tools when he is required by the riggers. When it is to the machinist's interest to have the riggers finish the job quickly, he is more willing to render as much assistance as possible and at least will be on hand to see that there is no delay on his part.

There is scarcely an operation in the building of a vessel to which some form of premium compensation cannot be applied. Where such is done, labor efficiency will take care of itself, provided a reasonable amount of care has been exercised in selecting men to build and maintain the organization.

The preparations of time estimates or rate setting for each job should be done with care and can, if desired, be assigned to a special group of men known as rate setters. The basis for figuring rates should be an analysis of information concerning operations, piece work rates or time studies which has been prepared from returns on previous work of similar nature.

A thorough knowledge of the work to be done is prerequisite as is also a reasonable amount of good judgment.

The records compiled in the planning office as previously outlined are the most accurate guides for making rates which become practically standard after the system has been used for a while. In fact the work of planning and rating gradually becomes a matter of reapplication from one contract to another by simply making such changes as are found to be advisable and which are necessary to meet the plans and specifications of the new contract.

SUMMING UP

The foregoing is a simple system that can be gradually introduced into any established organization without disrupting the personnel or interfering with production during its inauguration.

The department head may become the planner for his department and his assistant the executor of his plans; the subforemen become the assistants of the executor and the clerk of a department may become the planner's clerk in the planning office, caring for the job cards and time cards in the calendar file and such other routine as there is to do. The department timekeeper may remain in the same position looking after the time cards of the workmen and performing such other duties as may be required. The system is flexible so that where all the persons mentioned are not required the work can be arranged to provide for one man doing as much as the volume of business will permit. Where only a few men are employed in his department it would not be impossible for the planner to do all the work that the system

Generated on 2024-09-12 11:27 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

requires. It should be kept in mind, however, that the planner is the master of his craft.

In conformity with the above arrangement, the assistant superintendent would become the head of the planning department and the superintendent the production manager.

CONCLUSION

The chief advantage of the foregoing system is that it provides a method of positively controlling every activity involving direct labor expense and that it will reduce overhead in addition to insuring an orderly sequence of the work. With this method there is no such thing as "bluffing" along anywhere in the organization because, if a workman, foreman or department head cannot carry the responsibilities of his position, the fact begins to show very soon in the figures returned. Every workman on the payroll is contributing to production by doing work that has been previously planned, scheduled (assigned to a definite date), and rated and which is on record in the calendar file in the planning office.

The planners devote their time to planning their work ahead so that the material needed will be at hand when required and the work will go forward in the proper order and information of possible delays or excessive charges is obtained far enough in advance to allow corrective measures being taken to offset losses.

Reports are made out at regular intervals by the planner's clerks. These can be made in a number of ways to show the actual progress of the work in relation to the planning, the actual cost in relation to the estimated costs, the relative progress of the different departments and the efficiency in any detail that may be desired, extending, if necessary, to each job or man, gang, or squad.

With the information contained in the calendar file an ingenious clerk can compile statistics in reports or graphics that will show most anything that may be desired concerning the production in the plant.

There is actually a detailed cost account available for every job which has been prepared at no extra expense, which is accurate and which will locate leaks and show up inefficiency before there is a loss of any magnitude.

Knowledge of actual costs is most essential when preparing estimates, especially when the competitive bidding is keen and in making up a financial statement the expenditures on work under construction will mean a great deal when compared with the estimated labor costs.

By a physical survey of the plant, it is very difficult to detect the dropping behind of any department until it is really in bad shape and perhaps holding up work in other departments which is sure to cause a loss through workmen standing idle or working to a disadvantage while the department that is behind catches up with its work, if it can. The progress records show the slightest variation and give the department head and superintendent an opportunity to guard against loss from this cause.

There is no part of this system that is not an actual function in a plant without it, but by systematizing the supervision along sound business principles, duplication of effort and uncertainty of action are eliminated.

Activity Shown in Requests for Marine Exhibit Space

Thirty-Eight Companies Given Booth Numbers for Exposition to Be Held November 4-11—Twelve New Members Join Recently Incorporated Association

WITH America's maritime situation the prominent feature before the public at present, in connection with the ship subsidy bill awaiting definite action by Congress, it is interesting to note the steadily growing interest in the Marine Exposition scheduled for the week of November 4-11 at the Grand Central Palace, New York City. The latest announcement from the American Marine Association, under whose auspices the exhibition will be held, states that the incorporation of the association has now been completed, the corporate name being American Marine Association, Inc., and that 38 companies actively interested in the construction, repair and equipment of vessels have already signified their intention of taking part in the show and have been officially alloted space. It is also stated that 12 new members, many of them among the largest concerns in the marine industry, have recently been added to the membership of the association.

The early response on the part of exhibitors is considered as highly gratifying to the exhibits committee, the latter being composed of Gardner Cornett, of the Pneumercator Company (chairman); K. W. Heinrich, Bethlehem Shipbuilding Corporation; Frank J. Shipman, Texas Company; W. H. Raab, Todd Shipyards Corporation, and A. S. Hoffman of the Griscom-Russell Company. The official allotment of space and booth numbers made at a meeting of the exhibits committee held on June 1 are as follows:

American Manganese Bronze Company, 2; General Electric Company, 3, 4, 5, 6; C. H. Wheeler Manufacturing Company, 7; Pneumercator Company, 8; Victor Engineering Company, 12; C. A. Woolsey Paint & Color Company, 13; Peabody Engineering Company, 15; The Texas Company, 16; McCormick, McPherson & Lapham (San Francisco, Cal.) 17; Ashton Valve Company, 21; The Sperry Gyroscope Company, 22, 23, 24; W. & J. Tiebout, 29; Pantasote Company, 30; Lee & Simmons, Inc., 31; The Crandall Engineering Company, 38; The Babcock & Wilcox Company, 42; Simmons-Boardman Publishing Company, 51; Ellcon Company, 53; Northern Fire Apparatus Company, 55; Coen Company, 57; National Malleable Castings Company, 58; Scovill Manufacturing Company, 59; Griscom-Russell Company, 60; Diamond Power Specialty Corporation, 63; The Superheater Company, 66; Crane Company, 68; Bethlehem Shipbuilding Corporation, Ltd., 70, 72; The Sterling-Cooper Corporation, 71; Todd Shipyards Corporation, 84, 88; Westinghouse Electric & Manufacturing Company, 85, 87; Marine Decking and Supply Company, 96; Lunkenheimer Company, 99; Worthington Pump & Machinery Corporation, 100; Kingsbury Machine Works, 101; The H. E. Boucher Manufacturing Company, 108; B. F. Sturtevant Company, 111; Crane Packing Company, 305; The Stamford Foundry Company 327.

It is also announced that Valentine & Company, New York City, has also made a reservation of space and a number of other concerns have already signified their intention of exhibiting.

The Association is conducting a drive for new members, the results of which to date have been highly gratifying to all concerned.

The office of the association is in Room 1624, 15 Park Row, New York City. Telephone, Barclay 5458.

Generated on 2024-09-12 11:22 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Generated on 2024-09-12 11:21 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

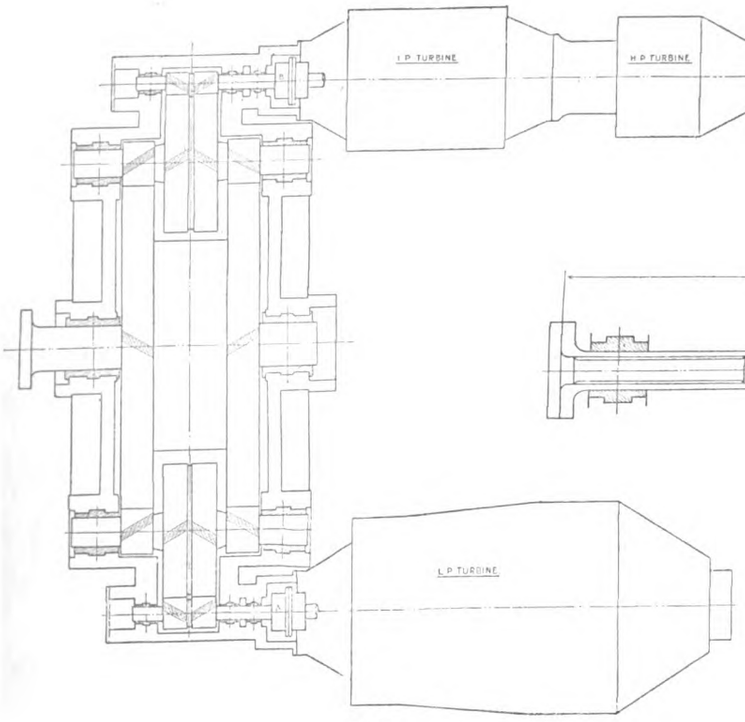


Fig. 1.

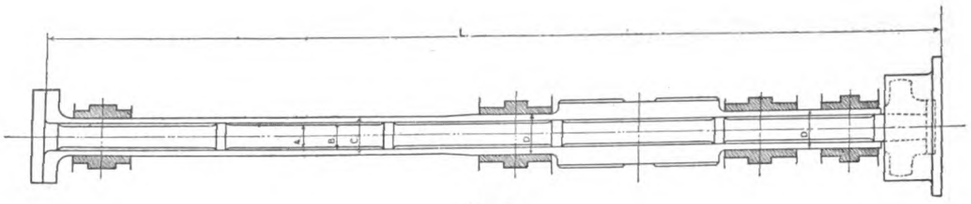


Fig. 2.

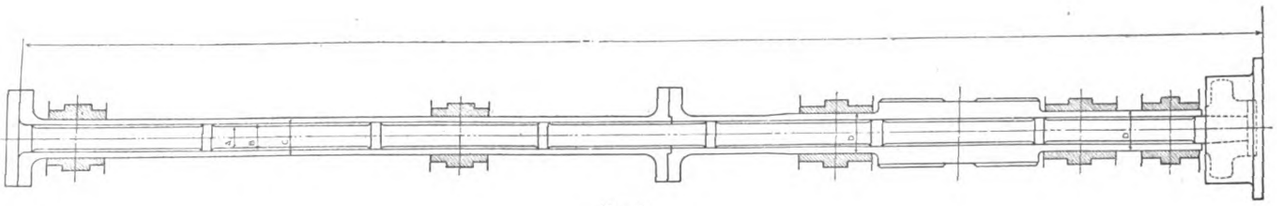


Fig. 3.

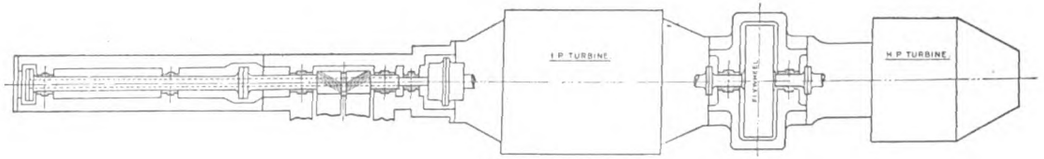


Fig. 4.

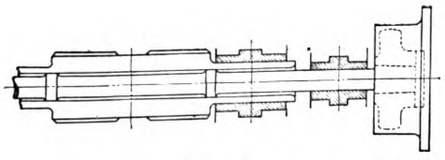


Fig. 6.

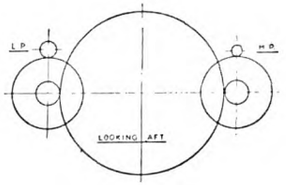


Fig. 1A.

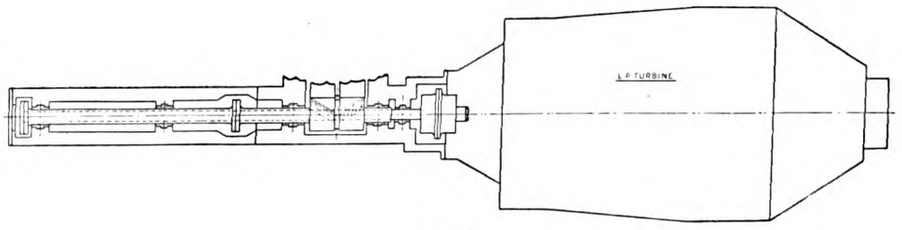


Fig. 5.

Figs. 1-6.—Arrangement of Turbines and Double Reduction Gears on S. S. Melmore Head, Showing Nodal Drive

Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Double Reduction Gears in the S. S. Melmore Head*

Successful Running of the Gears Secured by Tuning of Periodicities of the Rotating Masses of the System

By J. Wilkie

IN the controversy which has centered round the problem of double reduction gears during the past few years, it has been exceedingly difficult to collect reliable information regarding the troubles which have been experienced with this type of drive. Excessive noise in the engine room, with hammering of the gears, would appear to have been all too common in gear-driven ships. When this is the case, heavy flaking of the gears in the neighborhood of the pitch line occurs, with grooving and deformation of the teeth and occasional fractures of the teeth, which clearly suggest fatigue of the material.

While this must have been the experience of many, there are those who assert that there is nothing wrong with double reduction gearing. If this is the case, one naturally wonders why it should be necessary to run many of our geared ships at reduced powers, and to design the gears for new installations at half of the original tooth pressures, thereby greatly increasing the weight and cost of gears.

With so much conflicting evidence, there is good ground for the appeals which have been made for giving all the facts available regarding the performance of double reduction gears at sea.

By the courtesy of the directors of the Ulster Steamship Company and the directors of Messrs. Workman, Clark & Company, of Belfast, the author is enabled to give a detailed account of the troubles experienced with double reduction gearing in the *Melmore Head*, together with a description of the methods recently adopted to overcome these troubles.

The *Melmore Head* is a single screw steamer of 2,500 shaft horsepower driven by double reduction geared turbines. This ship was built and engined by Messrs. Workman, Clark & Company, and delivered to her owners in September, 1918.

Fig. 1 shows in plan the arrangement of the turbines and gear, while Fig. 1a shows the relative positions of the pinions and wheels. The revolutions of the various elements are:

High pressure, and intermediate pressure turbines and pinions	3,600 per minute
Low pressure turbine and pinions	2,400 per minute
Second reduction pinions	560 per minute
Main shaft	70 per minute

The second reduction gears are designed for a working pressure of 1,000 pounds per inch width of tooth, and at 70 revolutions per minute the constant $P/\sqrt{d}$ is 274. The machinery is placed amidships, and the length of the main propelling shaft from the gear to the propeller is 144 feet.

In her regular service across the North Atlantic the *Melmore Head* makes the outward voyage in ballast and the homeward voyage loaded.

As several sets of gearing have been fitted to the original gear case at different times, these will be designated by numbers in order that the sequence of events may be clearly followed. Particulars of the various gear arrangements are given in Table I.

TABLE I

	Gear No. 1		Gear No. 2		Gear No. 3		Gear No. 4		Gear No. 5		Gear No. 6	
	P.C.D.* Inches	Circular Pitch Inches	P.C.D. Inches	Circular Pitch Inches	P.C.D. Inches	Circular Pitch Inches	P.C.D. Inches	Circular Pitch Inches	P.C.D. Inches	Circular Pitch Inches	P.C.D. Inches	Circular Pitch Inches
High pressure pinion	7.143	0.8976	7.06	0.6	Gear No. 2 retained		Gear No. 2 retained		7.06	0.6	7.062	0.6778
High pressure primary wheel	45.714	0.8976	45.798	0.6	Gear No. 2 retained		Gear No. 2 retained		Gear No. 2 retained		45.795	0.6778
Low pressure pinion	10.000	0.8976	9.923	0.6	Gear No. 2 retained		9.925	0.6778	9.925	0.6778	Gear No. 5 retained	
Low pressure primary wheel	42.857	0.8976	42.935	0.6	Gear No. 2 retained		42.936	0.6778	Gear No. 4 retained		Gear No. 4 Retained	
Second reduction pinions	13.333	2.094	13.507	0.8	13.495	1.1458	Gear No. 3 retained		Gear No. 3 retained		Gear No. 3 retained	
Main wheel	106.667	2.094	106.493	0.8	106.504	1.1458	Gear No. 3 retained		Gear No. 3 retained		Gear No. 3 retained	

*P.C.D. = Pitch Circle Diameter

NOTE.—Figures are inserted where the parts have been renewed.

GEAR NO. 1

In erecting this gear in the shop every precaution was taken to ensure accurate alinement, and the same care was taken to ensure this alinement being maintained when the gearing was transferred from the shop and put in position in the ship.

The running of this gear on the trial trip was very unsatisfactory. The noise in the engine room was deafening, while at the gear case it was evident that the gears were hammering each other in a most alarming fashion. This hammering of the gearing was not confined to any one particular speed, but could be distinctly traced at all speeds up to the maximum.

It was confidently expected that after a short time at sea the general conditions in the engine room would improve, that the teeth would become properly bedded to each other and that the hammering would cease. Such a state of affairs, however, was never realized and each succeeding report from the chief engineer merely indicated that matters were getting worse. This was confirmed by personal observations on the part of the author. It has been his practice, until quite recently, either to meet the ship on her arrival in Belfast Lough or to accompany her to her coaling ports on the Clyde or Bristol Channel, in order to trace the various developments in the problem.

*Paper read at sixty-third session of the Institution of Naval Architects, London, April, 1922.

Generated on 2024-09-12 11:23 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

A careful examination of the gearing at the end of the first voyage showed a considerable amount of flaking of the teeth and grooving at the pitch line. By the end of the second voyage this had increased considerably, and in addition, a sharp protruding edge was being formed on the teeth of the second reduction gears. This was removed before the third voyage was started. During the second voyage, also, considerable trouble had been experienced through choking of the oil filters by steel particles from the gearing and, in addition, a slight fore-and-aft movement of the second reduction pinions was detected.

The outward portion of the third voyage was safely completed, although the choking of the oil filters and the movement of the second reduction pinions were increasing. When 400 miles of the homeward voyage had been covered, however, the movement of the pinions had become so violent and the consequent pounding of the gears and vibration of the gear case so severe, that speed had to be reduced, and Norfolk, Va., was made with very great difficulty. In this port, temporary thrust pads had to be fitted to the ends of the second reduction pinions to hold them in position. By this means it was possible to run the machinery at a speed sufficient to maintain steerage way on the ship while she was being towed home by another of the company's vessels.

Between September, 1918, and April, 1919, when this gear collapsed, approximately 25,000 miles had been covered at full power. Particulars of the speeds and revolutions are given in Table II.

TABLE II.—Extracts from Log of S.S. *Melmore Head*

	Voyage Number	Speed in Knots	R.P.M.	Gear
1.	Outwards	10.8	69.2	No. 1
	Homewards	10.8	70.0	No. 1
2.	Outwards	10.87	70.4	No. 1
	Homewards	11.1	69.0	No. 1
3.	Outwards	11.5	71.3	No. 1
4.	Outwards	12.2	71.0	No. 2
	Homewards	11.0	67.1	No. 2
5.	Outwards	11.6	72.0	No. 2
	Homewards	9.9	67.1	No. 2
6.	Outwards	11.7	71.6	No. 2
7.	Outwards	7.5	49.4	No. 3
	Homewards	7.8	50.5	No. 3
8.	Outwards	7.5	47.1	No. 3
	Homewards	7.7	48.3	No. 3
9.	Outwards	7.8	48.3	No. 3
	Homewards	6.3	47.4	No. 3
10.	Outwards	7.4	49.6	No. 4
	Homewards	8.0	52.6	No. 4
11.	Outwards	10.2	65.3	No. 5
	Homewards	8.0	52.7	No. 5
12.	Outwards	8.0	54.9	No. 6
	Homewards	9.4	59.6	No. 6
13.	Outwards	10.1	62.3	No. 6
	Homewards	9.9	63.2	No. 6
14.	Outwards	11.3	68.3	No. 6
	Homewards	9.9	64.0	No. 6
15.	Outwards	11.5	68.0	No. 6
	Homewards	9.5	62.5	No. 6

Two reasons were put forward for the failure of this gear; these were inaccuracies in cutting and faulty alinement. As regards alinement, great care had been taken with this in the course of construction, and when the gear wheels were removed it was again checked by mandrils in the gear case bearings and found to be correct. This being the case, the whole cause of the trouble was attributed to inaccurate cutting of the gears. It was decided, therefore, that new gears of finer pitch (particularly in the case of the second reduction gears) should be put in hand, and that these should be cut by a different firm of gear cutters.

GEAR NO. 2

The gear wheel and pinions in this case were mounted in the gear case on board the ship. The alinement of all the parts was carefully examined, and all concerned (including the gear cutters) were satisfied as to the accuracy of the work. Had any doubt existed, this was removed by an examination of the tooth markings after the trials had been run.

The performance of this set of gearing on trial showed very little improvement on the performance of the first set. The noise in the engine room was still excessive, and the hammering of the gears was much in evidence. Nevertheless, the ship went on her fourth voyage at her originally designed speed.

While this gear lasted the rattle and roar in the engine room remained undiminished. The gears were examined at the end of each voyage and, although the wear on the teeth did not appear to develop as rapidly as in the first gears, signs of the old troubles with flaking and grooving were not wanting.

At the end of the fourth voyage the pressure of the oil supply to the gears was increased by raising the level of the gravity supply pipes to the top of the engine room casing. No appreciable change in the noise resulted from this alteration, however, and the fifth voyage was completed under the similar uncomfortable conditions of previous voyages.

The sixth voyage of the ship, and the third with this set of gearing, saw the collapse of Gear No. 2. On the passage up the St. Lawrence River, the second reduction gears stripped half-way across the face of each pinion and wheel shroud.

Between August and November, 1919, this gear had completed approximately 14,000 miles at full speed. Temporary second reduction gears were dispatched to Canada, and after these were fitted up the ship returned to Belfast at about half power.

An examination of the fractured teeth of this second set of gears showed that all the teeth had been broken off sharp at the roots without any sign of elastic deformation. From this it was concluded that the material had given way under fatigue stress and this was subsequently confirmed by tests carried out at the steel works. It appeared, therefore, from an examination of all the facts available that stresses of a nature or magnitude not anticipated in the original designs were being transmitted through the gears and that lower tooth pressures would have to be employed, if the gearing was to be made to work satisfactorily.

Accordingly it was decided to re-design the gear case and to limit the maximum tooth pressure to 500 pounds per inch width. This gear was actually completed, but, as subsequent developments proved, it was never necessary to have it installed in the ship.

GEAR NO. 3

As the demand for tonnage at this time was very great, a third set of second reduction gearing was installed to work in conjunction with the primary gears retained from Gear No. 2. With this arrangement the ship was to be kept in commission at reduced power until the new gear case was ready.

Three voyages (Nos. 7, 8, and 9, Table II.) were completed with this arrangement before any modifications were made. The average speed over these three voyages was 7.5 knots at 48.5 revolutions, giving a value of 132 for the constant $P/\sqrt{d}$.

The running conditions with this gear, even at reduced power, were not too satisfactory. While the engine room conditions were certainly tolerable, there was clear evidence of the former hammering action of the gearing taking place. The intensity of this action was, of course, greatly diminished owing to the reduced speeds of rotation of the wheels, at the same time a reduction of the constant from 274 to 132 had not produced that smoothness of running and absence of noise so essential for the preservation of the gear for any considerable time.

Generated on 2024-09-12 11:22 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

In the author's opinion the method of attacking the gearing problem by simply reducing tooth pressures was not satisfactory. It seemed to be more or less a shot in the dark supported by no sound argument, and was likely to prove a tedious and costly method of experiment.

From a careful study of the observations made from time to time on the *Melmore Head,* the writer came to the conclusion that the gear transmission system as a whole was dynamically unsound and that, if satisfactory running of the gears was to be obtained, some consideration would have to be given to the inertia effects of the various rotating masses and particularly to the effect of torsional vibrations of the propelling shaft, arising from propeller action in a variable wake.

Shortly after the third gearing arrangement was installed, Professor Smith was called in to investigate the problem on behalf of the builders and the writer became associated with him in carrying out the subsequent changes which were made from time to time.

The mathematics of the problem have already been put before you in Dr. Smith's paper on "Nodal Arrangements of Geared Drives." The writer will, therefore, confine his remarks to a description of the various changes made on the *Melmore Head.*

It had been observed at various times that the hammering effects in the gear appeared to be most severe at the low pressure side. The reason for this was believed to be that, because of its mass and the rigidity of its connection to the gears, the low pressure turbine was unable to keep step with the fluctuations in speed of the main wheel which resulted from torsional oscillations of the main shaft. Parting of the teeth would, therefore, occur with hammering when contact was resumed. It was decided, therefore, as a first experiment to adjust the shaft connecting the low pressure turbine to its primary pinion in such a way as to make the periodicity of the free torsional oscillations of the low pressure turbine about the main gear wheel equal to the periodicity of the free torsional oscillations of the propeller about the main gear wheel.

GEAR NO. 4

To carry out the idea of tuning the low pressure turbine and its driving shaft to the same periodicity as the propeller and propeller shaft, the pinion shaft A in Fig. 1 was removed and replaced by a hollow bored pinion shaft with an internal flexible driving shaft as illustrated in Fig. 2. The principal dimensions of this arrangement were A = 2 9/16 inches, B = 2 11/16 inches, C = 4 1/16 inches, D = 4½ inches, L = 7 feet 10 inches. The stress on the internal shaft was 9,900 pounds per square inch. The collars on the internal shaft were made a sliding fit in the bore of the pinion shaft and were introduced to prevent any possible whipping of the internal shaft.

As the primary wheel on this side of the gearing was badly grooved, it was decided to renew this wheel in addition to fitting the new pinion. *Otherwise it is to be particularly noted that no other change was made on the gearing and that the second reduction gears remained exactly as when originally fitted in arrangement No. 3 at the end of voyage No. 6.*

This arrangement was thoroughly tested on trials run at full power in Belfast Lough. The effect produced in the running of the gear by the introduction of this flexible drive was most encouraging. The hammering of the gears had entirely disappeared at the low pressure side, and instead, a pure rolling of the teeth was produced. The gear case which had previously vibrated considerably was now perfectly steady and generally the conditions in the engine room were comfortable. As was anticipated, of course, hammering was still evident at the high pressure side of the gears, due to the fact that no adjustments had been made on that side.

Although the trials of this arrangement had proved so satisfactory, it was decided to make the next voyage at a speed not exceeding 50 revolutions per minute. The reason for this decision was that the arrangement was purely experimental and of a temporary nature, and the stresses adopted for the flexible driving shaft were unusually high. This voyage—No. 10 in Table II—was successfully completed and at its conclusion a careful examination of the gears showed no grooving or pitting of the teeth. It may be argued, of course, that one voyage of approximately 7,000 miles is too short a period in which to draw any conclusions as to the condition of the teeth. With the first and second gears, however, there was no doubt as to what was happening to the gear teeth long before that distance had been completed.

GEAR NO. 5

As a result of the experience gained in the first experiment, it was now decided to tune both turbines and their driving shafts to the same periodicity as the propeller shaft. This time the stresses in the driving shaft were reduced from 9,900 to 7,500 pounds in order to provide a sufficient margin of safety for continuous working at full power. Stresses lower than 7,500 pounds were considered impossible in this ship, as the driving shafts would have become too long to be satisfactorily supported.

Pinion shafts A and B in Fig. 1 were replaced by hollow bored pinion shafts with extension sleeves and internal shafts as shown in Fig. 3. The principal dimensions of these shafts were:

	High Pressure Side	Low Pressure Side
A	2½ inches	2 13/16 inches
B	3 inches	3⅜ inches
C	4¼ inches	4½ inches
D	4½ inches	4½ inches
L	10 feet 10 3/16 inches	10 feet 10 3/16 inches

As the length of the high pressure driving shaft could not be made sufficiently long to completely tune this side of the system, it became necessary to increase the inertia effect of the high pressure and intermediate pressure turbines in order to tune them to the same periodicity as the propeller, and to obtain an approximate balance between the two sides of the driving system. This increase of inertia was accomplished by introducing a flywheel between the high pressure and intermediate pressure turbines. The position of the flywheel between the turbines was chosen with the idea of binding the three elements in such a way as to form approximately one rigid mass and thus avoid the possibility of independent vibrations being set up between those three units.

This flywheel with its shafts was a solid forging of 34-38 tons steel, the diameter of the wheel being 3 feet ½ inch, the breadth 9 3/16 inches, and the weight 2,720 pounds. The flywheel is shown in Fig. 4.

This arrangement of flexible shafts and flywheel was fitted up at the conclusion of voyage No. 10. It is again to be particularly noted that *no adjustments were made on the second reduction gears, these remaining exactly as when originally fitted at the end of voyage No. 6.*

Trials at full power were run with this arrangement, and the results were considered to be very satisfactory. The absence of hammering in the low pressure primary gear and at both sides of the secondary gears was particularly noticeable. One defect remained, however, which subsequently proved to be more important than was anticipated. Doubtless many of you were present when these trials were run in Belfast Lough, and you may have noticed a slight vibration at the high pressure primary gear.

When the new pinion and flexible shaft were fitted to the high pressure side, no change was made in the primary wheel. This wheel remained from Gear No. 2 and, as it was only slightly grooved, it was considered that it would run quietly with the new pinion and the flexible drive. On

Generated on 2024-09-12 11:29 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

the trials, however, this condition was not quite realized and a slight vibration developed at the high pressure primary gear.

With this one apparent defect remaining the ship set out on her eleventh voyage, the outward portion of which was completed at an average of 65.3 revolutions. The vibration at the high pressure primary gear had increased somewhat by the end of this outward voyage and, as it continued to increase during the homeward passage, speed was reduced and the voyage completed at an average of 52.7 revolutions.

GEAR NO. 6

An examination of the high pressure pinion at the end of this voyage showed that it had become grooved in exactly the same fashion as the primary wheel. It was evident, therefore, that to set a new and well-cut pinion to work in a worn wheel and expect quiet running conditions was a mistake, consequently both the high pressure pinion and primary wheel had to be renewed.

The flexible shafts were also withdrawn for examination at this time and it was found that the collar at the flexible coupling end of each driving shaft showed considerable wear. This necessitated a modification of the design and a bearing coupled to the forced lubrication system was fitted as shown in Fig. 6. This is the last modification that it has been found necessary to make on the gears of the *Melmore Head*. Fig. 4 shows the arrangement of the "nodal drive" as applied to the high pressure driving element and Fig. 5 shows the arrangement as applied to the low pressure driving element.

With this arrangement the ship has been in continuous service and is giving complete satisfaction. Up to the time of writing, voyages 12, 13, 14 and 15 have been completed. The average revolutions for the twelfth voyage and the remaining homeward voyages are low, due entirely to the poor quality of coal.

The condition of the gearing is perfect. So far, no "pitting" has appeared on the primary gears and only very light "pitting" along the pitch line of the secondary gears, which occurred prior to the carrying out of these experiments, and has not developed since. There is absolutely no trace of a beat in the gear case while running up to full power.

The second reduction gears have now completed approximately 50,000 miles, 16,000 before fitting the "nodal drive" and 34,000 miles since the experimental work commenced.

The writer would like to draw attention to the fact that all these changes in the *Melmore Head* have been carried out in the gear case originally fitted in the ship in 1918. No alterations have been made beyond those already described in the paper, and consequently the continued successful running of this gear is entirely due to the tuning of the periodicities of the various rotating masses of the system.

In conclusion, the writer wishes to express his indebtedness to the directors of the Ulster Steamship Company, and Messrs. Workman, Clark & Company for placing at his disposal valuable information regarding the *Melmore Head*.

Cement and Concrete for Shipbuilding Purposes—III

By Horace Holden Thayer*

Continuation of a series of articles containing information regarding shipbuilding materials and their uses that is not readily obtainable from shipbuilding handbooks and other generally available sources. The articles are not intended to be a complete exposition of the subject but will be found to contain items of value to the various classes of workers in this field who have to deal with these materials from the materials' point of view.

THERE are a number of coatings designed to protect concrete surfaces in oil tanks or elsewhere, on the ground that the oil disintegrates the concrete. An inspection made by the Bureau of Standards in 1917 of reinforced concrete oil tanks then in service indicated that such was not the case as far as mineral oils are concerned, and that these oils have no deleterious effect on concrete that is properly cured before contact with the oil. A series of tests subsequently made confirmed this with the possible exception of very light oils, but showed that certain organic oils do have a destructive effect on concrete. For marine service oilproof coatings should be of such a nature as to be unaffected by water.

MATERIALS FOR OILPROOF COATINGS

Tests made of perilla oil indicate that it is unaffected by exposure to gasoline, kerosene, crude oil and vegetable oils.

Some oil proof coatings have shellac as a base, with alcohol as a thinner, with a pigment and possibly other materials. Such compounds, while oilproof, are not waterproof, and are therefore undesirable in marine service. These coatings are also apt to be brittle.

Concentrated sulphite pulp mill liquor is also marketed for this purpose. It has good adhesive power on concrete surfaces and gives an oil proof coating, but is softened by water.

The coating adopted by the Shipping Board for the oil tanks of their concrete tankers was a high grade of spar varnish, resistant to air, light and water. Very detailed specifications and test requirements were prepared and successfully met by several of the paint and varnish manufacturers. The method of application was:

First Coat—To be applied on concrete which has been treated with magnesium fluosilicate solution and which has been dried at least 24 hours with good ventilation. Thin the varnish by adding 20 percent of volatile mineral spirits and apply with brush or air gun at 60 to 70 pounds pressure, a thin coat covering all portions of the surface, allowing no varnish to flow down vertical surfaces. Allow to dry hard; at least 24 hours being necessary, 48 hours is better. In confined spaces, during the application and during at least the first 24 hours of the drying period, artificial ventilation shall be provided.

First Coat on Other Paints and All Second and Third Coats—Apply the varnish without thinning, with brush, or with air gun at about 40 pounds air pressure. The above remarks as to covering, drying period and ventilation shall govern in all cases.

After about two years of experimentation the coating was modified to require a layer of cheese cloth between the second coat of varnish and a third coat of varnish or of so-called gray enamel, which consisted of 55 to 60 percent of the varnish and the balance of white lead pigment. The application of the cheese cloth on large surfaces, however, was found to be impracticable and its use was abandoned. The varnish itself, as has been mentioned, is difficult to apply in the hold of a vessel, where, even with the most favorable weather conditions, it is hard to obtain sufficient

*Member of the firm of Rossell & Thayer, naval architects and marine engineers, Philadelphia, Pa.

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

light and air for proper drying. It is also injuriously affected by alkali salts in the concrete.

The Tentative Standard Specifications require that concrete structures for containing light mineral oils, animal oils, certain vegetable oils, and other commercial liquids shall be given a special coating which shall be applied immediately after construction. Floors or other surfaces exposed to heavy concentrations of such oils or liquids shall be similarly protected. The treatment to be applied shall be approved by the engineer.

The writer is of the opinion that it is neither necessary nor advisable to coat concrete oil tankers as a protection from mineral oil or to coat oil tanks for carrying the oils usually met with except as a protection from water. Apart from the use of penetrating oils or other special applications, coating the surface with thin cement grout should suffice; and such practice has the approval of the Bureau of Standards for oils of about 35 degrees Beaume or greater density. The film of oil deposited on the surface affords some protection against water when the tanks are being used for ballast. Examination of leakage in way of rivets or seams of steel tanks carrying heavy mineral oil shows it to be of the nature of dark colored kerosene; so it does not seem unreasonable to extend the service of the grout coated oil tanks to carrying the lighter oils when necessary.

MATERIALS FOR HARDENING THE SURFACE OF CEMENT AND CONCRETE

As has been stated in the article on deck coverings, cement and concrete surfaces under wear produce a fine powder, and the surface without special treatment is not as wear resistant as is desirable in some locations. This difficulty, which assumes some importance on concrete ships, can be overcome by surface hardening compounds.

Magnesium fluosilicate, either as such or under some trade name, has been used to a considerable extent for this pur-

A	B	C
OUTER HULL SURFACES		
Keel to Light Draft Line		
Magn. Fluosilicate .....1 application Spar Varnish .....2 coats Copper Bottom Paint.....1 coat or other approved Antifouling.	Bituminous Primer C.S 37.....1 coat Bituminous Paint C.S. 38.....2 coats Approved Antifouling .....1 coat	Perilla Oil to full saturation C.S. 37 or equal.....1 coat C.S. 38 or equal .....2 coats Approved Antifouling.
Above Light Draft Line		
Magn. Fluosilicate .....1 application Spar Varnish .....2 coats Jet Black Varnish.....1 coat	Bituminous Primer C.S. 37.....1 coat Bituminous Paint C.S. 38.....2 coats	Perilla Oil to full saturation C.S. 37 or equal.....1 coat C.S. 38 or equal.....2 coats
Exterior Walls of Houses, etc.		
Magn. Fluosilicate .....1 application Gray Enamel .....2 coats (or Spar Varnish 3 coats)	Magn. Fluosilicate .....1 application Gray Enamel .....2 coats	Perilla Oil to full saturation Gray Enamel .....2 coats
Exposed Decks		
Bituminous Primer C.S. 9.....1 coat Asphalt Deck Flooring	Bituminous Primer C.S. 37.....1 coat Asphalt Deck Flooring	C.S. 37 or equal .....1 coat Approved Bitumen Deck Covering
INTERIOR HULL SURFACES		
Water Ballast and Fresh Water Tanks		
Magn. Fluosilicate .....1 application Bituminous Primer C.S. 9....1 coat Bituminous Paint C.S. 10....2 coats	Bituminous Primer C.S. 37.....1 coat Bituminous Paint C.S. 38.....2 coats	Perilla Oil to full saturation C.S. 37 or equal.....1 coat C.S. 38 or equal.....2 coats
Oil Tanks—Floors, Sides and Bulkheads		
Magn. Fluosilicate .....1 application Spar Varnish .....3 coats	Magn. Fluosilicate .....2 applications Spar Varnish .....2 coats One ply of cheese cloth applied while the second coat of varnish is still tacky Gray Enamel .....1 coat	Perilla Oil to full saturation Thin Portland cement grout.....1 coat
Dry Cargo Holds—Bottom and Bilges		
Magn. Fluosilicate .....1 application Spar Varnish .....3 coats	Bituminous Primer C.S. 37.....1 coat Bituminous Paint C. S. 38.....2 coats	Perilla Oil to full saturation C.S. 37 or equal.....1 coat C.S. 38 or equal.....2 coats
Dry Cargo Holds—Side Walls, Bulkheads, etc.		
Magn. Fluosilicate .....1 application Spar Varnish .....2 coats	Bituminous Primer C.S. 37.....1 coat Bituminous Paint C.S. 38.....2 coats	C.S. 37 or equal.....1 coat C.S. 38 or equal.....2 coats
Engine and Boiler Rooms—Bottom and Bilges		
Magn. Fluosilicate .....1 application Spar Varnish .....3 coats	Magn. Fluosilicate .....2 applications Spar Varnish .....2 coats Gray Enamel .....1 coat	Perilla Oil to full saturation Spar Varnish .....2 coats Gray Enamel .....1 coat
Engine and Boiler Rooms—Sides, Bulkheads, etc.		
Magn. Fluosilicate .....1 application Spar Varnish .....2 coats	Magn. Fluosilicate .....2 applications Spar Varnish .....1 coat Gray or White Enamel.....2 coats	Perilla Oil to full saturation Spar Varnish .....1 coat Gray or White Enamel.....2 coats
Coal Bunkers		
Magn. Fluosilicate .....2 applications	Magn. Fluosilicate .....2 applications	Magn. Fluosilicate .....2 applications Perilla Oil to full saturation on bottom and bilges

Generated on 2024-09-12 11:21 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

pose. The Shipping Board used a 7½ percent solution, or 7½ pounds of the anhydrous salt to 100 pounds of water, which was made by diluting their standard specifications for this material, or other more concentrated solution, with fresh water. Their specification reads—

The material shall be clear, colorless solution of magnesium fluosilicate ($MgSiFl_6$) in water. The solution shall contain not less than 15 percent by weight of the salt $MgSiFl_6$ and shall not contain more than 1 percent of any other substance in solution, nor more than 0.2 percent of total chlorine.

The method of application, which was mainly for the purpose of neutralizing the free lime in the concrete, was:—

Apply with a wide brush or with air gun at low pressure, saturating the concrete surfaces, which shall be air dry before the application. Allow the concrete to dry before applying paint or varnish coats. Second application is made only where specified for hardening purposes. Apply 24 hours after the first application.

Some surface hardening compounds consist of a mixture of iron powder and ammonium chloride. It is sprinkled upon a fresh concrete surface and troweled in, or it is mixed with water, kept stirred and scrubbed upon concrete surfaces already set. The iron is supposed to rust and fill the pores of the concrete thus being a waterproofer as well as a hardener, and the ammonium chloride is to quicken the rusting action. Tests made by the Shipping Board showed that the treatment does make the surface harder; but the coating cracks with the concrete, so it is not valuable as a waterproofer.

Materials for Avoiding Trouble from Alkali Salts

Free lime in concrete comes to the surface and acts upon and saponifies the oil in protective coatings, thus destroying coatings of that nature. Avoidance of this trouble was the principal reason for the Shipping Board's use of magnesium fluosilicate solution. The results achieved, however, were of doubtful value. Zinc chloride is another surface application for this purpose.

Integral waterproofers of a siliceous character which are of benefit in this connection have been referred to.

Materials for Frost Proofing Cement and Concrete

The use of such materials in shipbuilding work is usually neither desirable nor necessary but it is well to know that they are available and that they have been the subject of favorable laboratory test as well as the test of actual use in construction on land. Salt has been used to a considerable extent and soda to some extent.

Their requirements are that they shall prevent the freezing and ensure the proper setting of the cement or concrete at the temperatures at which the work has to be performed; that they will not, in the amounts which have to be used, injuriously affect reinforcing steel or the tensile or compressive strength of the cement or concrete; and that they will not introduce any other deleterious factors.

The Tentative Standard Specifications state that salt, chemicals or other foreign materials shall not be used to prevent freezing.

Protective Coating Summary

In a consideration of protective coatings the steps taken in any progressive developments are of value as well as the final outcome. The following tabulation shows in a concise manner some of the Shipping Board's steps in developing coatings for the concrete oil tankers. Column A shows specifications as amended and adopted after about a year of research and test; and column B shows the requirements at the time of the breaking up of the Concrete Ship Section, when the work was turned over to the writer about a year later, with the construction well along. Column C embodies the writer's recommendations for such service.

It is well to note that antifouling oil paints or other oil paints cannot be used to make a satisfactory coating over bituminous paints. The oil and thinners in the former soften and blend with the latter and a very streaked and spotted coat results. When such a combination is exposed above water the outer coat checks and "alligators," due probably to being less elastic than the bitumen coating beneath it.

Asphalt Cement

This is a bituminous composition of the nature of bituminous enamel that is of value for filling in spaces which are subject to vibration, filling in between castings and steel plates which do not lie metal to metal, coating the bottoms of chain lockers, and other service where Portland cement would be apt to crack out or suffer damage. A bituminous priming coat should be first applied.

The Navy formula for the asphalt cement is:—

Ingredients	*Quantities required for 100 pounds*
Trinidad asphalt	15 pounds
Paving asphalt	51 1/5 pounds
Vulcanite special or Anchor Rock Brand asphalt	15 pounds
Rosin	1¼ pounds
Slaked lime	2½ pounds
Portland cement	17½ pounds

The asphalts and rosin are melted together, and when thoroughly mixed the Portland cement is added and the mixture well stirred. The fire is then drawn and the mixture is ready for use or storage.

Roman Cement

Roman cement is a natural hydraulic cement made by calcining and grinding a kind of cement rock which usually contains considerable iron oxide, thus giving the cement a red color, also manganese and more alumina than Portland cement. It is quick setting, hard and durable.

This material is of value on boiler room tank tops of oil burning vessels in place of the customary bituminous solution and enamel and is sometimes specified for such service. Spilled oil has a tendency to dissolve the bituminous coating and the fire hazard is also greater where such a coating is used.

Linoleum Cement

This material is of value to cement down linoleum or cork composition tiling and it is put on about ⅛ inch thick.

The Shipping Board Specifications for it are:—

This material shall be made as follows, using these exact relative proportions of ingredients:

Two ounces of real rubber shall be cut in one gallon of gasoline. This solution shall be added to a mixture of:

Thirty-two pounds of Grade A gum shellac cut in seven and one-half gallons of Clear Neutral Denatured Alcohol (No. 1 Internal Revenue Department Standard, 100 gallons grain alcohol and 5 gallons approved wood alcohol) to which solution has been added one hundred and twenty pounds of high grade Whiting.

The whole shall then be ground to an intimate mixture.

The whiting used shall contain no hydrated lime.

The Navy Department specifications for this material are somewhat similar to the above.

Smoothing Cement

Some compositions are required for evening off decks prior to laying linoleum and similar service. The Navy Department formula for such a cement is as follows:

Ingredients	*Quantities required for 100 pounds*
Venetian red, dry	10 pounds
Whiting	32 pounds
White lead, dry	16 pounds
Zinc oxide, American, dry	16 pounds
Litharge	16 pounds
Raw linseed oil	1½ gallons
Turpentine	¾ gallon
Japan drier	⅜ gallon

Generated on 2024-09-12 11:27 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Questions and Answers for Marine Engineers

Inquiries of General Interest Regarding Marine Engineering and Shipbuilding Will Be Answered in This Department

Conducted by James L. Bates

This department is maintained for the service of practical marine engineers, draftsmen and shipbuilders. All inquiries should bear the name and address of the writer. Anonymous communications will not be considered. The identity of the writer, however, will not be disclosed unless the editor is given permission to do so.

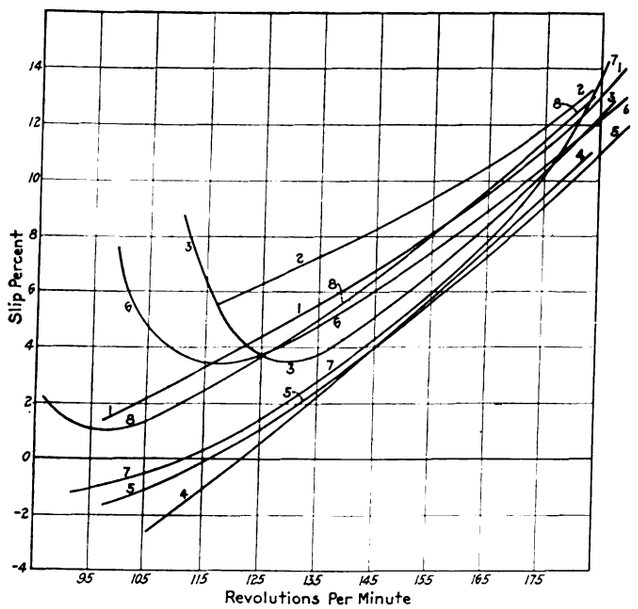
Unexplained Phenomena Developed in Tugboat Trials

Q. (1159).—The following data were obtained from the trial trips of eight boats (similar in all respects and constructed by a small shipyard) of a tug design about 100 feet long over all, 22 feet beam, 8 feet 3 inches mean draft, 260 tons displacement. Propeller 7 feet diameter, by 7 feet pitch, 4 blades. The trial trips were held in a depth of water of 28 to 32 feet, and over measured mile courses usually with a beam wind, over which six or more round trips were made to obtain the data.

In plotting the results obtained, especially the revolution-slip curve, a peculiar feature was noted on some of them, three became negative at slow speeds and three indicated a tendency to reverse, showing a minimum value for the apparent slip increasing either side of this for either an increased or decreased speed. This seemed peculiar, and it was thought that perhaps an error had crept in due to the wheelsman not having steered a straight course over the mile, but had see-sawed over the line.

What reasons would you assign for the characteristics of these curves as here shown, and why negative slip in some cases?

A. (1159).—On the basis of the information furnished, the writer has no explanation to offer relative either to the characteristics of the curves or the development of negative slip at the lower speeds in certain cases. It is possible that



Revolution-Slip Curves

with the aid of model tank effective horsepower curves and a fuller knowledge as to the conditions surrounding the trials of each vessel satisfactory reasons for the phenomena noted might be found.

It is suggested that any one or a combination of all the following might have been instrumental in producing the results obtained.

(a) Variations in propeller characteristics due to lack of uniformity in finish of blade faces.

(b) Inaccuracy in corrections for tide and wind on runs of opposite direction.

(c) Differences in displacement and trim at time of trials.

(d) Foulness of bottom and of propeller. These might easily have been important factors as the effect of fouling either on the vessel's bottom or on the propeller faces might render the relation between the vessel's speed and the revolutions of the propeller very uncertain.

Calculation of Lift of Valve

Q. (1158).—How would you figure the required lift of a valve to equal its diameter when the seat is mitered at a 45 degree angle?

A. (1158).—It is believed that the intent of the question is to ascertain the method of so figuring the valve lift that the flow of water past the edge of the valve disk will equal that through the valve seat. The following is based upon this understanding:

If there were no obstructions to the passage of the water through the opening in the valve seat, such as ribs and

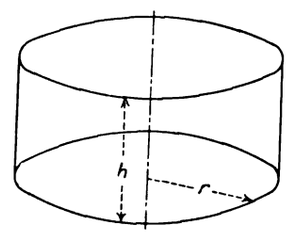


Fig. 1

bosses, and if no allowance were made for the effect of friction, change in direction of flow, etc., the problem would be simply that of finding the altitude of a cylinder such that its area of side is equal to the area of its base. In Fig. 1 let h = altitude of cylinder (valve lift) and r = radius of cylinder base (opening through valve seat). Then to meet the requirements of equal area

$$h \times 2\pi r \text{ must equal } \pi r^2$$

$$\text{and } h = \frac{\pi r^2}{2\pi r} = \frac{r}{2} = \frac{\text{diameter}}{4}$$

This merely expresses the generally accepted rule "valve lift equals ¼ diameter of valve opening."

In practice the valve is generally seated on a conical surface having an angle of 45 degrees, as you suggest. This surface is made as small as possible without unduly increasing the unit pressure exerted by the valve. On this account the above rule may be applied with substantial accuracy in practice, due allowance being made for obstructions in valve seat opening.

Uses of Specific Gravity

Q. (1162).—Of what uses to him are the specific gravity of the elements the marine engineer has to deal with? Give a simple rule, if any, for finding the weight, volume or specific gravity when only one or two of the three mentioned are known.

A. (1162).—Specific gravity of solids, liquids or gases, when known and used in conjunction with the weight of an

Generated on 2024-09-12 11:22 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

equal volume of water (for solids and liquids) and air (for gases) and the same temperature, determines the required unit weight of the substance in question. In other words, the two substances entering into the question must be at the same temperature and volume.

Example 1.—Required the weight of one gallon of fuel oil, the specific gravity of which is 0.9150. The weight of a gallon of water at 62 degrees F. (standard temperature) = 8.3356 pounds. Required weight = 0.9150 x 8.3356 = 7.627.

Example 2.—Required the specific gravity of fuel oil having a weight per gallon of 7.627 pounds at a temperature of 62 degrees F. As before with 8.3356 pounds as the weight of a gallon of water, we would have:

Specific gravity = 7.627 ÷ 8.3356 = 0.9150.

Example 3.—Required the volume of 10 pounds of fuel oil having a specific gravity of 0.9150 and a temperature of 62 degrees F.

$$\text{Volume} = \frac{10 \times 231}{0.9150 \times 8.3356} = 302.9 \text{ cubic inches.}$$

Where the volume of one gallon = 231 cubic inches, or basing on the weight of a cubic foot of water at 62 degrees F., which is 62.355 pounds,

$$\text{Volume} = \frac{10 \times 1728}{62.355 \times 0.9150} = 302.9 \text{ cubic inches.}$$

NEW BOOKS

STANDARD SEAMANSHIP FOR THE MERCHANT MARINE SERVICE. By Captain Felix Riesenberg, C. E. Master Mariner in sail and steam. Size, 6 by 9 inches. Pages, 942. Profusely illustrated. New York, 1922: D. Van Nostrand Company.

This book is a very thorough work on the art of seamanship, covering not only the management of all types of vessels but giving a clear description and definitions of the different classes of ships, their construction and equipment. To present a book of this kind, an author must have a long practical experience on both sail and steam vessels. For this reason there are very few books on seamanship as compared with the works on navigation. The art has been passed along by word of mouth by those who have become expert in the knowledge of the sea by actual physical contact with its forces.

Captain Riesenberg, however, is a good seaman as well as an interesting writer and, still further, he acknowledges a long list of prominent marine men from whom he has drawn material for his work.

While the book will be interesting to anyone who likes the sea, it should be a great help to the ambitious sailor whether he be employed on the deck or in the engine room. One of the author's objects is to give the engine room force a clear idea of the management of a vessel and, at the same time, to give the man on deck a general knowledge of the engine room.

The principal value of this work lies in the opportunity it gives to the officer or sailor to use his spare time in perfecting his knowledge in the management of ships. When safety depends, as it does on shipboard, on incessant attention to manifold details, it is of the highest importance that those who have the ambition to command should have complete knowledge of their vessel and every piece of equipment on it. They should not only know but they should also have the ability to quickly apply their knowledge; for in times of emergency the question of safety or disaster often depends on instant action.

The diagrams and illustrations of equipment and fittings are particularly good and they should enable a quick grasp of the subject by the reader. Rules are given in a systematic manner covering the handling of a ship and the regulations required by the navigation laws. Ropes, block and tackle, stowage, boats, compasses, leads, logs, ground tackle, maintenance, weather and many other subjects are treated at length.

The Mathematics of Navigation

Reviewed by Charles E. Manierre

THE MATHEMATICS OF NAVIGATION. By Edward J. Willis, M. E. Size, 5⅜ by 8 inches. Pages, 38. Illustrations, 19. Richmond, Va., 1921: J. W. Fergusson and Sons.

This volume will interest those who are students of the science of navigation. It is also a book which astronomers will want in their libraries and which will appeal to engineers concerned with geodetic surveying. Much of its contents is quite new and cannot be found elsewhere. It has already received favorable comment from competent authorities in the United States and in all the large maritime countries of Europe; it has been approved as a reference book in Chinese nautical schools, and a German translation is now in process of publication and will soon appear on the list of Echardt & Messtroff, Hamburg.

The author has approached his subject by way of the calculus instead of by the usual methods of spherical geometry and trigonometry. This may account for his finding several new and useful equations. His position is that while it is necessary to work to five places of decimals to obtain an accurate position, it is only necessary to work to three places to correct an approximate position. His method for difference hour angle and difference latitude enables him to use a 20-inch slide rule as a substitute for much work now done by logarithmic tables.

As an example of the novelty of his methods, he describes a circle about the St. Hilaire assumed position, using difference altitude as a radius and locating the Sumner line as tangent to this circle and through a point determined as a difference longitude. Incidentally he develops a substantially new equation for the cotangent of the azimuth as an excellent substitute for the first and second of Napier's Analogies as used in Section 352 of Bowditch. It is true that Muir uses this equation in a somewhat different form for a different purpose though he did not develop it to this particularly useful result.

Mr. Willis has also found a rearrangement of the sin cos St. Hilaire problem in which the hour angle is the unknown quantity. This permits an excellent substitute for the usual chronometer error problem and for the long used sin cos longitude problem, and suggests a similar problem for the cosine of the azimuth, with altitude, declination and latitude as the known quantities. It is a form of equation which may be used in navigation and in other spherical trigonometry work for finding all unknown angles when three sides are given. There is also a new equation for cosine of the azimuth, particularly useful when the object is nearly east or west. Great circle sailing, the Mercator chart and a fix by simultaneous observations are all treated in a novel manner in a few pages which bring the book to its conclusion.

The propositions are clearly stated and the book is also unusual in its brevity. It is decidedly a case of quality and not quantity. The book will repay abundantly the study of those who nevertheless do not themselves contemplate making a change in their own form of working. On the other hand, anyone of sufficient mathematical training, who is in the habit of using daily the slide rule and Crelle's tables in solving other problems and who does not look with favor on logarithms, can adopt the method of the author with a minimum of effort.

Generated on 2024-09-12 11:30 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

PERSONAL MENTION

HUGH MACKENZIE, assistant general passenger agent of the Pacific Steamship Company since 1916, has been promoted to the newly created office of general passenger agent of this company.

J. J. EASON, formerly in charge of the repair department of the Shipping Board, is now associated with the Globe Marine Compositions Company, Inc., ship painters and manufacturers.

A. G. JACKSON has been transferred from the traffic department of the Shipping Board in Washington to take charge of Mediterranean and European affairs in New York, succeeding W. L. Bull.

REAR ADMIRAL J. D. BEURET, U. S. N., has been named by President Harding to succeed Rear Admiral D. W. Taylor, who recently resigned as chief constructor of the Navy.

Rear Admiral J. D. Beuret

Admiral Beuret entered the service as a naval cadet in 1888 and graduated from the engineering division of the Navy in 1892. From October 1892 until December 1895 he studied at the Ecole des Mines and Ecole du Genie Maritime, Paris, and from this time until July, 1899, served as an assistant in the department of construction and repair at Mare Island Navy Yard. Leaving this post he became assistant to the superintending constructor at the Union Iron Works and remained here until July, 1901. For the next few years he held various posts in charge of the work of the bureau of construction and repair, becoming construction officer at the Navy Yard, Boston, in 1911. He held the position of inspector of hull material of the eastern district until May, 1913, following this with special duty in the department of justice. From December, 1914, until October, 1920, he was on the staff of the bureau of construction and repair and from then, until assuming his duties as chief of the bureau, was construction officer at the Mare Island Navy Yard.

HENRY J. MILLER was unanimously elected president of the Lake Torpedo Boat Company, Bridgeport, Conn., by the board of directors to fill the vacancy caused by the death of his brother, Herbert S. Miller.

W. L. BULL, head of the European and Mediterranean trades of the Emergency Fleet Corporation, has returned to the Mallory Transport Lines, having completed the special work undertaken for the Shipping Board.

GEORGE F. HILL has been appointed general agent of the North Atlantic and Western Steamship Company. Mr. Hill was formerly affiliated with the Erie Railroad at New York and later with the Norton Company of Worcester, Mass.

ANGUS MARSHALL, formerly general superintendent of the Alabama Dry Dock and Shipbuilding Company, Mobile, Ala., has resigned his position with this company to become vice-president and general manager of the Todd Shipbuilding and Dry Dock Company, Mobile, Ala. For 13 years prior to his association with the Alabama Dry Dock Company he acted as marine superintendent for the Texas Company and more recently as assistant manager of their shipbuilding plant at Bath, Me.

MEYER LISSNER, of Los Angeles, Cal., has been reappointed as a Pacific Coast representative of the Shipping Board. Mr. Lissner was born in San Francisco in 1871, received his education in the public schools at Oakland, Cal., and graduated from the Los Angeles Law School in 1899. Since 1899, until the new Shipping Board was formed last year, he was engaged in the practice of law in Los Angeles. In 1907, Mr. Lissner organized the Los Angeles City Club and was its president in 1911. He was president of the Good Government Organization and chairman of the First Board of Public Utilities in Los Angeles in 1909. He was also active in organizing the reform movement in California in 1910 and was chairman of the State Central Committee in that year. Mr. Lissner has always maintained an active interest in California's public service and was a delegate to the National Committees in 1912 and 1920. From 1914 to 1918 he was editor of the *California Outlook* and from 1916 to 1920 a member of the California Industrial Accident Commission. In 1921, on the formation of the new Shipping Board, he was appointed as a Pacific Coast representative.

Meyer Lissner

REAR ADMIRAL W. S. BENSON, U. S. N. (retired), former chairman of the United States Shipping Board, has been reappointed by President Harding as one of the Atlantic Coast representatives of the Shipping Board. Born in Bibb county, Georgia, in 1855, Rear Admiral Benson was graduated from the Naval Academy in 1877. In 1879 he was commissioned a midshipman and served on the *Constitution* for two years. In 1881 he was made an ensign and commissioned through succeeding grades to the rank of admiral (chief of naval operations), in 1916. Admiral Benson has served as commanding officer of several of the first class dreadnoughts and at one time was chief of staff of the Pacific fleet. From 1907 to 1908 he served as commandant at the Naval Academy and was commandant of the Philadelphia Navy Yard and supervisor of the third, fourth and fifth naval districts from August 1913 until April 1915, when he was assigned to duty as chief of naval operations. In the latter part of 1917, he was assigned to duty in London, after which he returned to the United States and remained until assigned to special duty in Paris. He remained abroad until June, 1919. In the following year, he was elected chairman of the Shipping Board for the unexpired term of John Barton

Rear Admiral W. S. Benson

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Payne, who resigned to become Secretary of the Interior. Upon the formation of the new Shipping Board last year, Admiral Benson was appointed as a representative from the Atlantic Coast district.

W. L. MARTIGNONI is representing Messrs. Pillsbury and Curtis, the naval architects of San Francisco, at the Sun Shipbuilding Company's yard where the passenger liner is being built for the Inter-Island Steam Navigation Company.

CAPTAIN W. A. HINDON has been made port captain of the United States Shipping Board, port of Boston, to relieve Captain John J. Coholon, resigned. During the war, Captain Hindon was on the staff of the commandant at the Hampton Roads Naval Base and also served as executive officer on several navy transports.

ARTHUR STOUT has been made assistant to the general manager of the Todd Shipbuilding and Dry Dock Company's new plant at Mobile, Ala. Mr. Stout was formerly assistant general superintendent of the Alabama Dry Dock and Shipbuilding Company of Mobile and before this was with the United States Shipping Board, the Johnson Iron Works of New Orleans and the Marine Iron Works of Chicago.

CAPTAIN GEORGE F. COOPER, U. S. N. (retired), has joined the staff of Uttmarks Nautical Academy of New York and Boston. Captain Cooper will be in charge of the Boston school to relieve Captain L. Wessel. Captain Cooper had command of the U. S. S. *Louisiana* and was executive officer of the U. S. S. *Rhode Island* when these vessels were the "pride of the Navy." During the war, Captain Cooper was in command of several transports and later commandant of the eighth Naval District, the United States Naval Training Base and other activities at New Orleans.

NATHAN A. SMYTH, general counsel of the United States Shipping Board Emergency Fleet Corporation, recently resigned. Mr. Smyth joined the Emergency Fleet Corporation in July, 1921, intending to remain until January, 1922, but owing to the enormous amount of work on hand, decided to remain for another six months. Mr. Smyth was born in Quincy, Ill., but received his early education in New Haven, Conn. He graduated from Yale University in 1897 and from the Yale Law School in 1900. In 1901 he was admitted to the New York bar and has practiced in that state since that time. From 1902 to 1909 he was assistant district attorney of New York. During and immediately after the war he was assistant director general of the United States Employment Service Bureau, returning from this position to private practice. He was again called into the service of the Emergency Fleet Corporation as general counsel in 1921.

JOSEPH W. POWELL, who recently resigned from the position of president of the United States Shipping Board, Emergency Fleet Corporation, has been elected a member of the board of governors of the Maritime Association, Boston Chamber of Commerce. Mr. Powell is generally regarded as one of the leading authorities of this country in shipbuilding and marine engineering. A graduate of the United States Naval Academy at Annapolis, Mr. Powell left the Navy after a few years' service to take up ship construction. He had charge of the Fore River Yard of the Bethlehem Shipbuilding Corporation and during the world war was elected vice-president of the corporation and organized and supervised all of the Bethlehem Corporation's shipbuilding operations. At the close of the war, Mr. Powell was called to Washington and accepted the position of president of the Shipping Board Emergency Fleet Corporation, serving in that executive capacity for a period of six months. Mr. Powell is deeply interested in the efforts being made to increase the business of the port of Boston and the other New England ports and as a member of the governing board will co-operate with the Maritime Association in its efforts to upbuild and increase New England's foreign trade through its own ports.

SANFORD H. E. FREUND, special counsel in charge of contracts, opinions, and recoveries of the United States Shipping Board has been appointed to succeed Nathan A. Smyth, general counsel for the Emergency Fleet Corporation, who recently resigned. Mr. Freund graduated from Harvard College in 1901 and from the Harvard Law School in 1903. Upon leaving the university, he became a member of the firm of Saltonstall, Dodge & Carter, attorneys at Boston where he remained until 1910, when he was appointed eastern attorney of the Chicago, Rock Island and Pacific Railroad Company. In 1912 he was chosen assistant general counsel for the Great Northern Railway Company and served in this capacity until 1918 when he entered the services of the Government as director of the clearance division, United States Employment Service. He left this position in 1919 to become assistant general counsel of the United States Railroad Administration, and later joined the legal staff of the Emergency Fleet Corporation.

OBITUARY

A. J. FREY, of Los Angeles, Cal., vice-president of the United States Shipping Board Emergency Fleet Corporation in charge of physical operations, died at the Johns Hopkins Hospital, Baltimore, Md., on June 13. Mr. Frey was one of the greatest ship operating organizers that the country has ever produced and Albert D. Lasker, chairman of the Shipping Board, when notified of his death, stated that the best work of the Board has been done in physical operations during the period that Mr. Frey was on active duty. For sixteen years prior to 1918 Mr. Frey was with the Pacific Mail Steamship Company, for the last eight years of which term he was assistant general manager. In May, 1918, he joined the United States Shipping Board Emergency Fleet Corporation at San Francisco and succeeded District Manager Pillsbury in charge of the ship construction division of the southern Pacific district. This position he held until July, 1920, when he entered the service of the Los Angeles Steamship Company as general manager. He resigned from this position in order to become associated with the Shipping Board. He was later made vice-president of the Emergency Fleet Corporation and continued in active charge of operations until he succumbed to the sickness which resulted in his death.

A. J. Frey

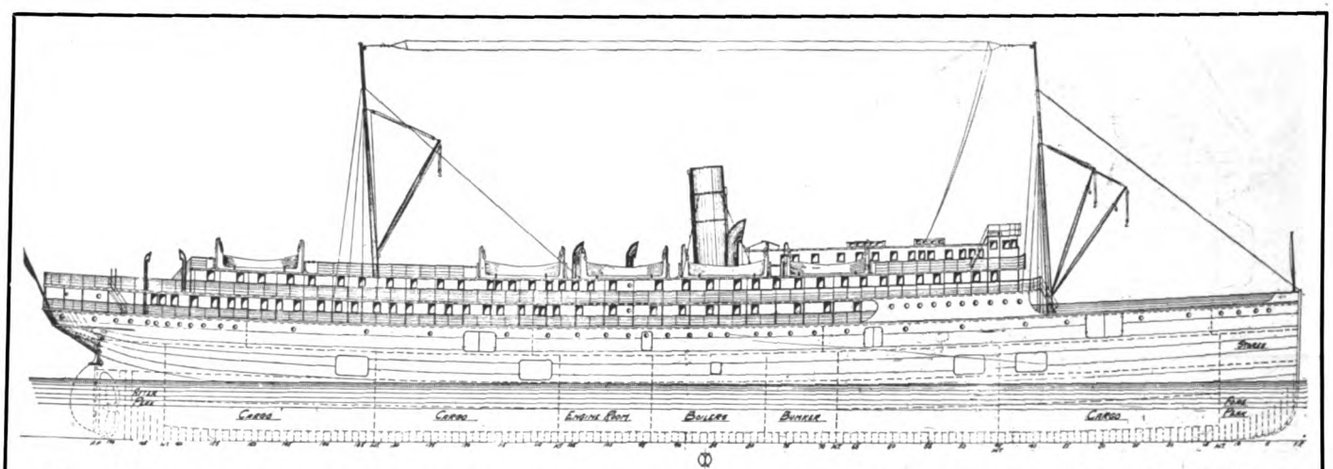
HERBERT S. MILLER, president of the Lake Torpedo Boat Company, Bridgeport, Conn., died recently at his home in Bridgeport.

SIR ERNEST MANIFOLD, RAEBURN, K. B. E., who succeeded Sir Ashley Sparks as director general in this country of the British Ministry of Shipping, died in New York on June 1. His work here was the settlement of counter claims between the Shipping Board and the British Government as a result of the world war.

Generated on 2024-09-12 11:28 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Shipbuilding, Reconditioning and Operation

Port Expansion, Passenger and Freight Activities and Other Notes of Interest in All Branches of the Marine Industry



Outboard Profile Showing Type of Ship to be Contracted For By The Savannah Line For Atlantic Coast Service

Ocean Steamship Company, Savannah Line, Issues Plans and Specifications for Two Passenger and Freighters

Vessels Will Be Built of Steel, Driven by Reciprocating Engines Turning Single Screws—To Accommodate About 228 Passengers—Bids June 29

THE Ocean Steamship Company, of Savannah, E. R. Richardson, vice-president and general manager, Pier 35, North River, New York City, received bids for the construction and delivery of two steel, single screw combination freight and passenger steamships, until 12 o'clock noon (Daylight Saving Time), on June 29, to be opened at 3 P. M. on the same date. It is expected that the ships will cost approximately $1,000,000 each. The first ship is deliverable September 1, 1923, and the second ship, October 1, 1923. The vessels are to be similar in type to the company's steamers *City of St. Louis* and *City of Montgomery*.

DIMENSIONS

The specifications provide for a ship having an overall length of about 400 feet, length between perpendiculars 382 feet, beam molded 52 feet, depth molded to hurricane deck 35 feet, depth molded to main deck 27 feet, depth molded to lower deck 18 feet 6 inches, depth molded to orlop deck 10 feet 6 inches, load draft with 3,500 gross tons deadweight including cargo, coal, passengers, crew and stores, about 18 feet 6 inches. Maintained sea speed, loaded, not less than 12½ knots.

GENERAL DESCRIPTION

The vessel will be a steel hull, single screw, passenger and freight ship of the hurricane deck type, being schooner rigged with two steel pole masts. There will be a complete steel orlop deck in the cargo holds, steel upper between deck, steel main deck, steel hurricane deck, wood promenade deck and wood boat deck.

The propelling machinery will be an inverted, direct acting, triple expansion, surface condensing engine, having cylinders 26 inches, 43 inches and 72 inches diameter by 48-inch stroke with a working steam pressure of 200 pounds and the engine designed to develop 2,900 indicated horsepower at not exceeding 75 revolutions per minute. The air and two bilge pumps will be worked from the crosshead to the main engine, the other pumps to be independent.

BOILERS

There will be four, single-ended cylindrical return tube type main boilers, 14 feet 9 inches diameter by 11 feet 6 inches long, fitted for burning coal under natural draft. Diamond flue blowers and connections will be installed on all four main boilers.

CONDENSER

The condenser will be of the independent circular type. There will be about 4,100 square feet of cooling surface, the tubes to be of brass ¾-inch outside diameter by 17 BWG thick and the tube plates of rolled brass 1-inch thick. The propeller will be a right-hand true screw of about 16 feet diameter with cast iron hub and four manganese bronze blades.

ENGINE ROOM EQUIPMENT

The feed water heater will be of the Reilly multicoil type of sufficient size for heating the feed water to a minimum temperature of 200 degrees F. and two spare coils will be furnished.

(*Continued on page* 464)

Quarter Million Dollar Job Awarded To Dravo Co.

The Dravo Contracting Company has been awarded a contract by the Gulf Coast Lines, covering the design and construction of a new car transfer steamer, to be named *G. H. Walker*, at a cost of $250,000. The steamer will be constructed to handle complete train service between Mexico and the Southwest, and New Orleans and the East, across the Mississippi River, between Anchorage, La., and Baton Rouge, La.

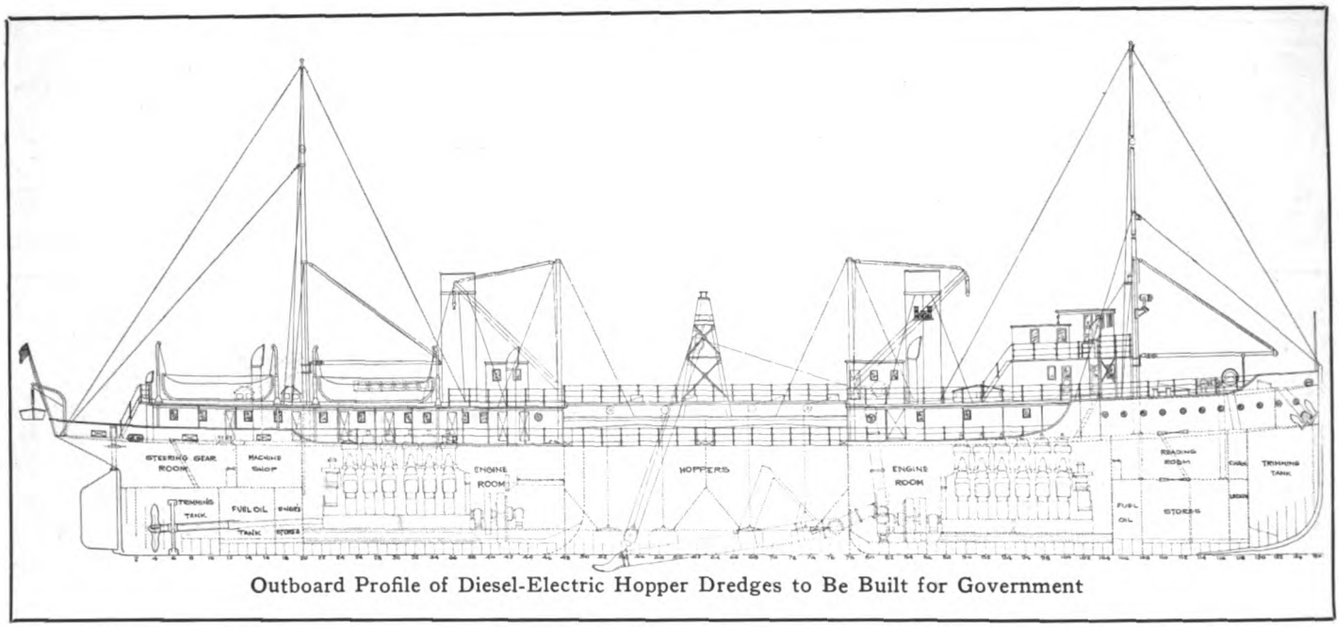
The *G. H. Walker* will have a molded length of 340 feet, beam over guards of 90 feet, molded beam of 56 feet, depth of 11 feet, and will be of steel construction throughout. Complete trains will be handled by the boat at a single crossing. The Dravo Contracting Company plans to complete the boat on its Neville Island docks and send it South under its own steam, by way of the Ohio and Mississippi Rivers. It is intended to ship a cargo of 2,000 tons of steel products to New Orleans on her.

Two Stern Wheel Tugs Are Being Designed By New York Architects

PLANS and specifications are being prepared by Cox and Stevens, naval architects, New York, for a shallow draft stern wheel river towboat. The principal dimensions are: Length over all, 90 feet; beam, 20 feet and depth 4 feet. The propelling machinery consists of a 200-horsepower C. O. engine having a double roller chain drive and reduction gear. This boat is for the Kelley Axe Manufacturing Company of Charleston, W. Va.

A similar towboat, fitted with a 60-horsepower engine for the Peoria Grain and Barging Company of Springfield, Ill., is also being designed by Cox and Stevens. This boat is for service on the Illinois river.

Generated on 2024-09-12 11:42 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



Outboard Profile of Diesel-Electric Hopper Dredges to Be Built for Government

Three Million Dollars to Be Spent for Construction of Four Diesel-Electric Seagoing Dredges

War Department Issuing Plans and Specifications for 268-Foot Ships of Modern Design and Equipment—Will Have Capacity of 1,250 Cubic Yards—Bids Open August 2

THE engineers of the war department, Washington, D. C., have prepared plans and specifications for the construction of four Diesel-electric, seagoing hopper dredges, each having a capacity of 1,250 cubic yards and which, it is expected, will have a total cost of approximately $3,000,000 to $3,250,000.

The specifications and plans will probably be in the hands of bidders by June 29 and the bids are to be opened August 2. The ships are to have an overall length of 268 feet 5 inches, length between perpendiculars 254 feet, beam molded 46 feet, depth 22 feet 6 inches, draft loaded 19 feet 6 inches, speed 11½ knots.

Propulsion

Each vessel will be equipped with three engines of the McIntosh & Seymour type of 1,000 brake horsepower on the four-cycle system. The engines will be direct-connected to 700 kilowatt generators for both propelling and dredging. They will produce a direct current of 500 volts. The two propulsion motors for the twin screws will develop 800 horsepower. They will run between 90 and 110 revolutions per minute on direct current and will be fully enclosed.

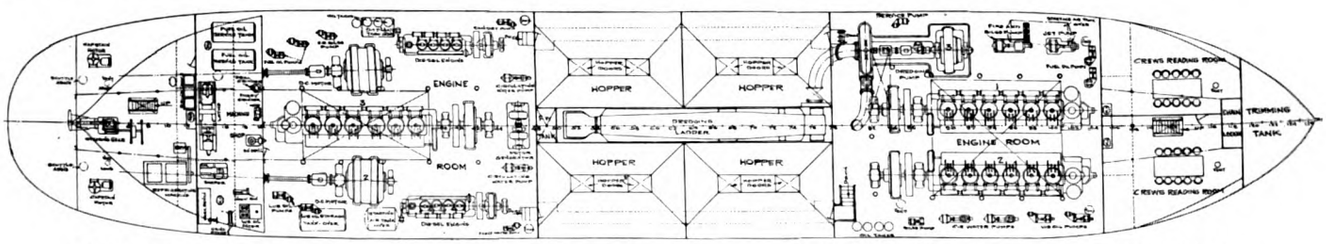
The dredging motor will develop 750 horsepower at 150 revolutions per minute and it will be directly connected to a 26-inch volute centrifugal, single suction, dredging pump.

Electric Control Throughout

The Ward-Leonard system of electric control will be installed so that the engines may be worked either from the pilot house or the engine room. It is thought that in actual use the engines will probably be controlled from the pilot house when dredging and in the engine room when the vessel is being navigated.

Approximate Cost

It is expected that the cost of these ships will range from approximately $750,000 to $800,000 each.



Hold Plan of Hopper Dredge Showing General Arrangement of Propelling Machinery and Auxiliaries

Ocean Steamship Company, Savannah, Issues Specifications

(*Continued from page* 463)

There will be two bilge pumps, 3 inches diameter by 21-inch stroke, one fitted at each side of the air pump. There will be two 2½-inch Metropolitan double-tube injectors and one auxiliary surface condenser consisting of not less than 450 square feet of cooling surface to be fitted with an independent, direct-acting, combined air and circulating pump. Steam pumps will include two feed pumps, 14 inches diameter steam cylinder, 9-inch diameter water cylinder, 24-inch stroke; two fire and bilge and ash ejector pumps, size 12 inches by 8½ inches by 12 inches, of the vertical duplex type; one ballast pump, size 7½ inches by 9 inches by 10 inches; one sanitary pump, size 12 inches by 8½ inches by 12 inches; one fresh water pump, size 6 inches by 6 inches by 6 inches and the main circulating pump will be of the centrifugal double suction type, 14-inch suction, driven by an independent, direct-acting, single cylinder engine, 8 inches diameter by 10-inch stroke. Two ash ejectors will be fitted in the fireroom, one on the port side and one on the starboard side.

There will also be one 4-ton service one one 4-ton spare refrigerating machine of the Brunswick or equal type on the ammonia brine system.

On the promenade deck there will be 40 rooms with 16 beds, 64 berths, accommodating a total of 80 passengers.

On the hurricane deck there will be 42 rooms with 4 beds, 80 berths, accommodating 84 passengers, making the total first-class passengers 164.

On the hurricane deck there will be 12 rooms with 24 berths, accommodating 24 passengers.

On the main deck there will be 8 rooms with 16 berths, accommodating 16 passengers, making the total number of second-class passengers 40.

Generated on 2024-09-12 11:25 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Tenders Received For Three Freighters To Enter Coast Route

A REQUEST for bids for the construction of one, two and possibly three coastwise freighters for the Eastern Steamship Lines, Inc., of Boston, Mass., was recently sent to several shipyards on the east coast. The plans and specifications were prepared by Theodore E. Ferris, naval architect, 30 Church street, New York City, and bids were scheduled for opening on Wednesday, June 14. It is believed the ships will cost close to $300,000 each. They will be built of steel and driven by reciprocating engines turning a single screw.

TYPE AND DIMENSIONS

The ships will be of the hurricane shelter deck type having an overall length of 233 feet 3 inches; length between perpendiculars 221 feet 6 inches; beam molded, 38 feet; load draft, 17 feet; 1,400 deadweight tons and developing a speed of 11½ knots. The vessels will be schooner rigged having two steel pole masts with cargo derricks. There will be four hatches, four steel bulkheads and complete double bottom.

PROPELLING MACHINERY

The propelling machinery will consist of one triple expansion engine, 17 by 28½ by 48 by 36-inch stroke, developing 1,100 indicated horsepower, turning a single, four-bladed propeller at 98 revolutions per minute.

BOILERS

Steam will be supplied by two oil burning, single ended Scotch boilers fitted with heated forced draft. The boilers will be of the two-furnace type, 11 feet 6 inches inside diameter, 11 feet long, having 2,972 square feet of heating surface and delivering steam at 190 pounds working pressure.

ENGINE ROOM

The engine room equipment will include one main condenser having 1,875 square feet of condensing surface, one main circulating pump of the centrifugal type with about 8-inch suction; one main air pump, one auxiliary feed pump, one fire, bilge and general service pump, one sanitary pump, one ballast pump, one fresh water pump, one scuttle butt circulating pump, one ice machine condenser circulator pump, two oil service pumps, one oil transfer pump, one feed water heater to handle 20,000 pounds of water and one 2-inch injector.

Plans and Specifications Out for Steel Freighter

Plans and specifications have been issued for the construction of a steel freight steamer for the Catskill Evening Line to run between New York and Hudson River points. It is understood that bids are to be received by J. W. Millard & Bro., naval architects of 17 State street, New York, who designed the vessel and drew the specifications, until July 15, 1922, decision on the contract to be reached probably by August 15.

The boat will be 192 feet extreme length, having a beam molded at deck of 40 feet 4 inches. She will be driven by a triple expansion reciprocating engine, steam being supplied at 180 pounds working pressure, by a coal burning single ended Scotch boiler.

$491,904 Is Low Tender for Construction of Twelve Sea Scows For New York Street Department

WITH a unit price of $40,992 and a total of $491,904 for 12 boats, W. H. Gahagain Company, of Brooklyn, N. Y., was low bidder for the construction of side dumper sea scows for the City of New York at the opening of bids by the Board of Purchase in Room 526, Municipal Building, Manhattan, on Monday, June 5. The bids submitted were as follows:

	Unit Price	Total Price
W. H. Gahagain, Brooklyn	$40,992.00	$491,904
Atlantic Gulf & Pacific Co.	44,491.67	533,900
Merchant Shipbuilding Corp.	49,000.00	588,000
Gildersleeve Shipbuilding Co.	60,000.00	180,000 (Total for three)

The specifications provide for a side dumper scow, length inside fenders 134 feet; breadth outside to outside of side planks 37 feet; depth molded to center, top of deck plank to bottom of bottom plank 14 feet; depth at sides, top of deck plank to bottom of bottom plank is 13 feet 8 inches; completely equipped for use by the Department of Street Cleaning.

American Shipyards Building 208,310 Tons on June 1

Steel tonnage under construction and contracted for in the United States on June 1 this year totaled 122 vessels aggregating 208,310 tons, according to the American Bureau of Shipping.

Of this tonnage, the records of the bureau show, 20 ships of 155,205 tons are of the seagoing type and 102 vessels aggregating 53,105 tons are non-seagoing, including tugs, ferryboats, car floats, yachts, etc. This work is shown to be well scattered over practically all of the yards of the North Atlantic coast and the Great Lakes.

The bureau reports work contracted for and under way on June 1 as follows:

Yard.	Seagoing. Craft.	Tons.	Non-seagoing. Craft.	Tons.
American Bridge Co.	..	.....	19	5,950
American S. B. Co.	*3	25,500	..	....
Amer. Car & Fdry.	..	.....	3	1,500
Atl., Gulf & Pac. Co.	..	.....	1	1,200
Beth. S. B. Corp., Ltd.—				
Balt. D. D. plant	..	.....	3	2,100
Harlan plant	..	.....	1	....
Sparrows Point plant	2	27,000	..	....
Alameda plant	2	27,000	3	3,600
Consol. S. B. Corp.	..	.....	3	1,425
Doullut & Williams S.B.	..	.....	1	450
Dravo Contracting Co.	..	.....	23	7,180
Eichlacy, John, Jr.	..	.....	4	1,760
Federal S. B. Co.	3	16,000	3	2,850
Great Lakes Eng. W'ks.	*1	6,585	..	....
Kyle & Purdy	..	.....	3	1,220
Los Angeles S.B. & D.D.	..	.....	2	2,400
Manitowoc S. B. Co.	*1	4,900	..	....
Marietta Mfg. Co.	..	.....	2	900
Merchant S. B. Corp.	1	7,800	..	....
Midland Barge Co.	..	.....	8	4,750
Newp't News S. B. Co.	..	.....	1	....
New York S. B. Corp.	2	13,600	..	....
Pusey & Jones Co.	2	5,420	..	....
Riter Conley Mfg. Co.	..	.....	10	4,300
Staten Isld. S.B. Corp.	..	.....	5	5,380
Sun S. B. Corp.	2	13,000	..	....
Toledo S.B. Co.	*1	8,400	*1	1,500
Ward, Charles	..	.....	3	2,600
Wm. Cramp	..	.....	3	2,100
Total	20	155,205	102	53,105

* For Great Lakes.

Bids Asked for Construction of Steel Maneuver Boat Hull

Sealed proposals in duplicate for furnishing and delivering a steel maneuver boat hull for dam No. 1, Levisa Fork, of the Big Sand River, will be received at United States Engineer Office, Room 415, Custom House, Cincinnati, Ohio, until July 1, 1922, and at the United States Engineer Office, 1122½ Fourth avenue, Huntington, West Virginia, July 1, 1922, and thereafter until 10 A. M. (central standard time), July 10, 1922. Prospective bidders may obtain blue prints upon application.

Eight Hulls Building at Yard of Federal Shipbuilding Company

The Federal Shipbuilding Company, of Kearny, New Jersey, announces the moving of its general sales offices from 71 Broadway to 26 Beaver Street, New York City.

Contracts at the Federal yard at present include the following:

Hull No. 68—1 10,000 deadweight tonnage steel freight steamer, length 425 feet, beam 56 feet, depth 30 feet.

Hull Nos. 69-70—2 steel oil barges for Gulf Refining Company, length 158 feet, beam 37 feet, depth 11 feet 6½ inches.

Hull No. 71—1 steel drill boat for War Department, sub-contract from Dravo Contracting Company, length 157 feet, beam 52 feet, depth 12 feet 9 inches.

Hull Nos. 72-73—2 steel passenger and freight steamers for Merchants & Miners Transportation Company, length 350 feet, beam 52 feet, depth 27 feet 3 inches.

Hull Nos. 74-75—2 steel car floats for the Long Island Railroad, length 292 feet, beam 43 feet 8 inches, depth 11 feet 6 inches.

Military Ceremonies Mark Renaming of Madawaska to U. S. Grant

When the *Madawaska* was lowered from the 30,000-ton floating drydock at the plant of the Morse Dry Dock Company, Brooklyn, N. Y., June 3, General Grant's granddaughter, Princess Cantacuzens, Countess Speransky, renamed the vessel the *U. S. Grant*. The Secretary of War, John W. Weeks, the Assistant Secretary of the Navy, Colonel Theodore Roosevelt, General Robert E. Bullard and staff from Governor's Island, Colonel L. H. Pash, Colonel W. H. Hart and Colonel E. A. Simmons were among the officers who attended the ceremony. A company of infantry was also present and music was furnished by an army band. Colonel Pash acted as master of ceremonies.

The *Madawaska*, which has been reconditioned for the Army Transport Service, on the trans-Pacific run, is a vessel of 9,410 gross tons. She is 490 feet long, 45 feet beam and has a depth of 31.1 feet. She has been refitted with watertube boilers of the Babcock and Wilcox type and a complete new refrigeration system installed.

Generated on 2024-09-12 11:26 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Marine Construction News of the Month

Ship Contracts — New Ship Concerns and Shipyard Improvements—Terminal Projects—Government Contracts

SHIPS AND SHIPBUILDING

Repairs to Damaged Steamer, Portland.—The schooner Ecola recently went on a Portland drydock for repairs.

Freighter Cleaned and Painted.—The Sailer, freighter of Java Pacific Line, drydocked for cleaning and painting.

Steamer Construction, Baltimore, Md.—Weems-Williams Line, Baltimore, Maryland, to build combination passenger and cargo steamer.

Miscellaneous Repairs, Chester, Pa.—The Innoko, American steamship, was placed in drydock for miscellaneous repairs at Sun Shipbuilding Company, Chester, Pa.

Coast Guard Cutter Overhauled, Seattle, Wash.—U. S. coast guard cutter Arcata underwent general overhauling at Seattle, after which she returned to her station.

Norwegian Steamer Repaired, San Francisco, Calif.—Steamer Niels Nielsen, Norwegian vessel, after arriving at San Francisco from the Orient, was drydocked for repairs.

Motorship Drydocked, Seattle, Wash.—The motorship Kennecott, in the service of the Williams Steamship Company, went to Seattle, Wash., to be drydocked before loading at Tacoma.

Steamer Taken from Layup, Boston, Mass.—Boston floating hospital, laid up for winter at Charlestown bridge, was moved to Atlantic Works, East Boston, for scaling and painting.

Contract Award, Portland, Ore.—Lowest bid for repairs to Iowan, reported in collision with Welsh Prince, was $53,500, with no delivery time guaranteed; contract awarded on bid of $57,000.

Repairs to Steamer, Mobile, Ala.—The contract for repairs to the American steamer Nyanza, now at Pinto Island, was awarded to the Alabama Dry Dock Company, repairs to cost about $45,000.

Tanker Repairs, Chester, Pa.—Tanker J. W. Van Dyke, of Atlantic Refining Company, was drydocked at Chester, Pa., at Sun Shipbuilding Company's yards.

Miscellaneous Repairs, San Francisco, Cal.—Pacific Mail liner Golden State was awarded to Moore Shipbuilding Company, having submitted lowest bid.

Schoolship Drydocked.—United States steamship Newport, schoolship of the New York State Nautical School, was drydocked preparatory for its annual cruise.

Conversion to Suction Dredge, East Boston, Mass.—Extensive alterations to whaleback steamer Bay View, to convert to suction dredge, were made at Simpson's Drydock in East Boston. Vessel has been sold to Cleveland interests and will return to lakes.

Barge Launched, Hoquiam, Wash.—Largest lumber barge ever built on harbor at Hoquiam, Wash., was launched at Shilman Shipyard for fleet of W. R. Osborn, Aberdeen. It has capacity of 150,000 feet and fleet operated by Osborn can now handle 1,500,000 feet.

Conversion to Oil Burner, Mobile, Ala.—The Nika, wooden steamer purchased at Mobile by F. M. Stark, of San Francisco, converted to oil burner and placed in Pacific coastwise lumber trade. Mr. Stark is negotiating for purchase of another wooden ship for same business.

Repairs to Steamer, New Orleans, La.—Marine Iron Works was awarded contract for making necessary repairs to Swedish steamship Italia of New Orleans & South America Company. President Walker, of Marine Iron Works, superintended all general repairs and overhauling required.

Steamers Repaired, Newport News, Va.—Famous old James river steamers Brandon and Berkeley, for years operated between Norfolk and Richmond by Old Dominion Steamship Company and idle for last two years, have been sold to New York-Cape May Steamship Company. Boats to be repaired before going into service.

Construction Considered, New York.—Clyde Line has under serious consideration construction of two new cargo and passenger ships, service from New York to Charleston and Jacksonville. Vessels probably to be similar to company's steamship Lenape, about 425 feet long, driven by turbine engines, speed about 15 knots.

Vessel Conversion, Hoboken, N. J.—Standard Oil tanker Montrolite converted at Tietjen & Lang plant of Todd Shipyards Corporation, Hoboken, New Jersey, from a turbine to reciprocating engined ship. Steamship L. J. Drake of same company was also at the yard undergoing similar conversion. Estimated total cost for both, $100,000.

Ferryboat Launched, New York.—The ferryboat Poughkeepsie, for the Poughkeepsie-Highlands run, was launched Monday, May 29, from the ways of the Mill Basin Shipyard of the Atlantic, Gulf & Pacific Company, at Jamaica Bay. Her dimensions are: length, overall, 140 feet; beam, over guards, 52 feet; draft, at launching, 8 feet 3 inches; draft, loaded, 9 feet 6 inches.

Contracts Placed, Southern Yards.—United States steamship Johancy was sent to plant of Newport News Shipbuilding and Dry Dock Company; the Meanticut, to Warwick Machine Company; the Braddock, to Newport News Iron Works; the Hinckley, to Southern Shipyard; and Eastern Crown to the Newport News Shipbuilding and Dry Dock Company.

Twenty-seven Hulls Under Construction, Pittsburgh, Pa.—Twenty-seven hulls, having total of 5,477 gross tons, are under construction by Dravo Contracting Company, of Pittsburgh, Pa. List includes four steel sand and gravel barges of 320 tons each, three steel cargo barges of 215 tons each and four steel cargo barges of 135 tons each, awarded the company in April.

Motor Yacht Sold, New York.—Motor yacht Sachem was sold by A. M. Andrews, of New York, to Harry S. Leyman, of Cincinnati, Ohio. Vessel is a 90-footer and was fitted out at Tebo Yacht and Basin Company of Todd Shipyards Corporation. The transaction and incidental work were handled by Henry J. Gielow, Inc., naval architects and marine engineers of New York City.

Car Transfer Steamer Construction, Pittsburgh, Pa.—Dravo Contracting Company was awarded contract by Gulf Coast Lines, covering design and construction of new car transfer steamer, to be named G. H. Walker, at cost of $250,000. The vessel will have molded length of 340 feet, beam over guards of 90 feet, molded beam of 56 feet, depth of 11 feet, and of steel construction throughout.

Shipyard Activities, West Coast.—The Logan, army transport, was placed on Hunters Point drydock for general repairs, cleaning and painting; the Everett, of C. R. McCormick Company, went on Bethlehem ways; Dutch steamer Salaier was at Hunters Point; steam schooner Hartwood had her keel renewed, a new tailshaft and propeller installed, and Union oil tanker Los Angeles went on Bethlehem ways for general repairs.

Largest Diesel Yacht, New York.—The Diesel cruising yacht Dolphin, built by Newport News Shipbuilding & Dry Dock Company from designs of Cox & Stevens, New York naval architects, for Mortimer L. Schiff, was delivered to her owner on Saturday, June 3. Three months under construction. Claimed to be largest Diesel motor yacht built in this country. 180 feet long, 24 feet beam, 14 feet depth of hold, and equipped with two 500 horsepower Winton Diesel engines. Average speed 14½ knots.

Steamer Overhauled, Hoboken, N. J.—W. & A. Fletcher Company, Hoboken, N. J., was awarded contract for reconditioning steamship Philadelphia, formerly of the American Line and recently sold to New York and Naples Steamship Line. Reconditioning contract, including hull, engine and boiler work, involved expenditure close to $100,000. Transfer of vessel to new ownership and preparation for active service were under supervision of George G. Sharp, naval architect, engineer and marine surveyor, 30 Church street, New York City.

Japanese Fuel Ship Launched, Camden, N. J.—The Kamoi, launched on June 8 at yards of New York Shipbuilding Corporation, Camden, New Jersey, is a fuel supply ship ordered by the Imperial Japanese Navy. On length of about 500 feet and designed draft of 28 feet the vessel has a displacement of 20,000 tons and deadweight carrying capacity of about 13,000 tons. She is electrically propelled, designed to carry 10,000 tons of cargo oil and is expected to achieve 15 knots with 8,000 shaft horsepower. Boilers, special design and coal firing, provision made for oil burning.

SHIPYARDS AND DRY DOCKS

Steel Dry Dock Loose, New Orleans, La.—Steel drydock of Jahncke Shipyard Company broke loose from fastenings at Jahncke wharf and carried downstream with it the steamship Nyanza. Ten tugboats were still at work following morning opposite Port Chalmette. It was found the dock had become submerged, its base being fully thirty feet under water. It required combined efforts of crews of ten tugboats to pump the water out of various compartments of the dock before they towed it upstream.

PORT IMPROVEMENTS

Harbor Improvements, Canada.—Montreal is to receive a loan from the Canadian Government of $5,000,000 for construction of new terminal. Quebec is to spend $1,500,000, to be loaned by the city's harbor commissioners.

Grain Elevator, Owen Sound, Ont., Canada.—G. H. Thompson is interested in a syndicate which plans to build reinforced-concrete and steel grain elevator, 1,000,000 bushel capacity, on waterfront, $400,000. J. H. Tromanhauser, 69 Adelaide street, E., Toronto, engineer.

Additional Docks, Orange, Tex.—The Orange Wharf and Dock Commission employed architects to prepare plans and specifications for additional facilities to be constructed to the municipal docks under the $250,000 bond issue which was sold. Plans and specifications available shortly.

Contract Awarded.—McCaw, Tomlinson & MacDonald, Winnipeg, Manitoba, were awarded contract for dredging the intake and ship channel in the Niagara River, near Chippawa, by the Hydro Electric Power Commission of Ontario, 190 University avenue, Toronto, at price of $500,000.

Channel Improvements, New Jersey.—House passed bill authorizing appropriation of $2,150,000 for improving channel in Newark Bay and the Hackensack and Passaic rivers, and $10,400,000 for establishing a channel thirty feet deep and 400 feet wide through Raritan Bay, Arthur Kill and Kill von Kull, between New Jersey and Staten Island.

Harbor Improvements, Corpus Christi, Texas.—The Senate Commerce Committee have unanimously agreed to incorporate in the rivers and harbors bill a provision committing the Government to an ultimate expenditure of $1,394,000 for the construction of a deepwater harbor at Corpus Christi, Texas. The entire project calls for an expenditure of $5,000,000.

Generated on 2024-09-12 11:27 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Sheds and Wharves to be Raised, New Orleans, La.—Millions will be expended in raising wharves and sheds at New Orleans to meet standard grade prescribed by United States War Department and Mississippi River Commission and concurred in by Louisiana State Board of Engineers. Work started on six sheds and wharves cost approximately $1,000,000. After those are completed other sheds and wharves will be raised to standard grade.

New Bunkering Port, Houston, Tex.—Provisions for bunkering Shipping Board vessels at Houston were included in fuel oil contract recently entered into by Shipping Board and the Mexican Petroleum Company. The new acquisition is considered by operators as a marked advantage to the port, as it will enable Shipping Board vessels coming into Houston to lift cargo and take on bunkers at the same time. The bunkering will be handled for the Mexican Petroleum Company by the Houston Oil Terminal Company. The contract is effective until December 31 of the present year.

Dock to be Rebuilt, Norfolk, Va.—The entire south pier of the Merchants Transportation Company at foot of West Main street, Norfolk, Va., is being rebuilt. The work will be in progress during entire summer. The new pier is to be about 600 feet long and of frame construction with galvanized iron covering. New piles will be driven wherever necessary. Work is to be done by construction department of the company. This department is maintained for work on the many terminals at all ports served by the company. During reconstruction the north pier will be used for freight and passenger traffic. The exact cost of the work has not been determined.

GOVERNMENT WORK

Extension to Pier, Pensacola, Fla.—The Bureau of Yards and Docks, Navy Department, Washington, D. C., plans extension to landing pier at Pensacola, Fla. Specification 4645.

Water Front Development, Pensacola, Fla.—Bureau of Yards and Docks, Navy Department, Washington, D. C., plans water front development at Pensacola, Fla. Specification 4644.

Contract Awarded, Providence, R. I.—J. S. Packard Dredging Company, 1004 Turks Head Building, Providence, R. I., was awarded the contract for dredging in harbor at Block Island, at price of $4,318, by the United States Engineer.

Dredging, Philadelphia, Pa.—The American Dredging Company, 410 Marine and Merchant Building, Philadelphia, Pa., has been awarded the contract for dredging on Liston Range, in Delaware River, 1,476,600 cubic yards excavation, at $0.18 per cubic yard scow measurement, by United States Engineer, 815 Witherspoon Building, Philadelphia, Pa.

NEW INCORPORATIONS

Castle-Lodge Steamship, New York, capital $125,000, incorporated at Delaware.

Lodge Navigation Company, New York, capital $500,000, incorporated at Delaware.

Mandalay Steamship Corporation, capital $500,000, chartered under laws of Delaware.

The Fall River Steamship Company, capital $40,000, chartered at Dover, Delaware.

China-America Line, filed application in Albany for increased capital from $150,000 to $1,000,000.

Phoenix Stevedoring & Trucking Corporation capital $100,000, incorporated at Dover, Delaware.

Phoenix Steamship Corporation, increased capitalization from $150,000 to $639,000, under the laws of Delaware.

Foreign Exploration Syndicate, of Manhattan, capital $100,000; incorporators, W. L. Crist, C. P. Stewart and E. Harding.

Ames Terminal Company, Washington, Delaware, capital $150,000, incorporated at Delaware to construct and operate terminals.

Franklin Lighterage Company, Manhattan, capital $5,000, incorporated at Albany; incorporators, J. van Pelt, J. McDonald and L. Kircher.

The Federal Stevedoring Company, capital $5,000 chartered at Albany; incorporators, S. & F. Barbarine and R. A. Flinn, of Manhattan.

The Navigation Steamship Company, Manhattan chartered at Albany for $250,000; incorporators, I. Olsen, M. E. Graef and L. W. Larsien, L. R. Bachner, attorney, 27 Cedar street.

The Northwestern Development Corporation, capital $1,500,000, to operate a steamship and transportation line between Portland and Seward, Alaska, headquarters to be at Vancouver, Washington; incorporators, A. J. Kaiser, L. C. Stringer and H. H. Dickson.

The New York-Naples Steamship Company, capital $250,000, organized under laws of Delaware; President, Mortimer B. Foster; George Ferguson, vice-president, and L. E. Schwartz, secretary and treasurer. Will handle operation of American Line ship purchased recently by United Italian Line.

Todd Shipbuilding and Dry Dock Company, Mobile, Alabama, capital $750,000, incorporated at Mobile; incorporators, William H. Todd, Arthur E. Goddard, John D. Riley, Dennis H. Lanman, of Brooklyn, New York, and Angus Marshall, Joseph H. Lyons and Harry T. Hartwell, of Mobile, Alabama.

Los Angeles General Steamship Agents, Los Angeles, Calif., incorporated recently and has taken over the agency of various steamship lines, including Struthers and Barry, Pacific-Argentine-Brazil, Swayne & Hoyt, Inc., Mexican States, Pacific-Caribbean-Gulf, Furness-Prince and Pacific Australian; incorporators, J. McMillan, C. G. Krueger and Walter Wheaton.

FOREIGN ACTIVITIES

New Motorship Ordered, Liverpool, England.—It is understood the Ocean Steamship Company, Liverpool, has ordered a 10,000-ton deadweight motor ship, about 400 feet long and to be delivered before end of 1922. She is to be equipped with a 3,000 indicated horsepower Burmeister and Wain long-stroke slow-speed Diesel engine, this being by far the largest motor of such a type yet built.

Engine Works Purchased, Glasgow, Scotland.—The shipbuilding firm of Swan, Hunter & Wigman, Richardson, Ltd., Wallsend-on-Tyne, has purchased the North British Diesel Engine Works at Glasgow, the best equipped plant in Britain for building large Diesel units. With the plant of their associated company, Barclay, Curle & Co., and their own plant at Walker, the firm now occupies a leading position as builders of oil engines.

Steamer Launched, Belfast, Ireland.—The passenger and mail steamer Diogenes of the Aberdeen Line has been launched from the new yard of Messrs. Harland & Wolff, Ltd. The launching of this ship was the first official ceremony at the new yard. The Diogenes is a sister ship of the Sophocles and is 500 feet long, 63 feet wide and 35 feet 3 inches deep, with a gross tonnage of 12,300 tons. She is for the owners' Australia trade.

Italian Fabricated Ships.—Six fabricated steel steamers are being built at yards of Cantiere Navale Triestino for Italian Cosulich Line. The fabricated steel was purchased in the United States from the Emergency Fleet Corporation. The first of the series, the Lucia has reached New York on her maiden voyage and is a ship of 8,610 deadweight tons, equipped to burn oil and driven by triple expansion engines of 2,300 horsepower, which give her a speed of 12 knots.

Engines for Steamships, Hamilton, Ohio.—Hooven, Owens, Rentschler Company, Hamilton, Ohio, closed contract with Federal Shipbuilding Company, Kearny, New Jersey, for furnishing two four-cylinder, triple expansion, 2,700 horsepower engines to be installed in new combination passenger and freight steamers which the shipbuilding company is building for Merchants' and Miners' Transportation Company, Baltimore, Maryland.

Four Ships, Great Lakes.—Recent contracts placed on the Great Lakes for new ships include two steel ore freighters to be built by American Shipbuilding Company of Cleveland for Pittsburgh Steamship Company; one steam freighter to be built by the Toledo Shipbuilding Company for the Kinsman Transit Company and one steel bulk freighter for the Franklin Steamship Company, of Cleveland, to be built by the American Shipbuilding Company. Vessels will be 600 feet long for cargo carrying, and propulsion will be by reciprocating engines.

Turpel Shipyard, Victoria, B. C.—It is reported that S. and E. Turpel, formerly connected with the Turpel Shipbuilding Yard and Marine Railway, at Victoria, B. C., are re-establishing the yard and marine railway on the old site, in the upper harbor. The original plant, absorbed by the Foundation Company during the war for building wooden steamships for British government under orders from the Imperial Munitions Board, had been in existence for about 35 years. The marine railway is said to be in course of construction and it is intended to operate a general ship repairing plant and to build small ships.

Trial Trip of Steamer, Belfast, Ireland.—The twin screw steamer Diomed, 10,180 tons, built by Messrs. Workman, Clark & Co., Ltd., Belfast, passed successful trials. The ship was constructed to order of Messrs. Alfred Holt & Company, Liverpool. Her dimensions are 489 feet by 62 feet by 30 feet. There are seven large cargo holds, the cargo gear being of the latest type, and the large number of winches and derricks are specially arranged for the expeditious handling of cargoes. The machinery was built by Messrs. Workman, Clark & Company, and consists of two sets of Brown-Curtis double reduction geared turbines, giving speed of 14½ knots.

Steamer Construction, Port Arthur, Ont.—The Port Arthur Shipbuilding Company, Port Arthur, Ont., has laid the keel of the steamship Mathewston. She will be a steel bulk freight steamship for Great Lakes service, for the Mathews Steamship Company, Toronto. The vessel will be 550 feet long, 58 feet wide and 31 feet deep, with a capacity for over 400,000 bushels of grain. Propelling machinery will consist of triple expansion engines, cylinders 25½, 41 and 67 inches diameter, by 42-inch stroke, supplied with steam by three Scotch boilers, each 13½ feet diameter by 11 feet 2 inches long, at 185 pounds working pressure, equipped with interchangeable furnaces. She is being built to the highest class for the Great Lakes, of the American Bureau of Shipping.

Motor Passenger Liner, England.—The Adda, large motor passenger liner under construction for the African service of Elder Dempster & Co., Ltd., was launched on May 25 from Harland and Wolff's Greenock yard. The ship's dimensions are as follows: length, 450 feet; breadth, 57 feet; molded depth to awning deck, 34 feet 6 inches. Her gross tonnage is about 7,800. There will be three complete decks. Passenger accommodations will be very spacious and luxuriously furnished. Berths are to be provided for 225 first, 74 second, and 32 third-class passengers. Propelling machinery will consist of two Burmeister and Wain type engines built by Harland & Wolff at Glasgow. They will each develop 3,000 indicated horsepower at 115 revolutions per minute.

Three New Motorship Contracts, Denmark.—An order has been placed by the Svendborg Shipping Company for a single-screw motorship, which will be one of the largest of its type equipped with Burmeister and Wain machinery. It is to be constructed at the Odense Shipyard, Denmark, and will have deadweight capacity of 5,100 tons. The new vessel will have the following dimensions: length between perpendiculars, 331 feet 3¾ inches; breadth, molded, 44 feet; depth from the shelter deck, 28 feet 11 inches. She will be of the open shelter-deck type and will have a speed of 10½ knots when fully laden. The same company has also ordered from the Odense yard two 7,770-ton deadweight, twin-screw motorships with a length of 378 feet 2 inches each, and the machinery will be constructed by Burmeister and Wain, Copenhagen.

Diesel Motorship, Copenhagen.—May 6, a new Diesel motorship was launched at the Copenhagen yard of Burmeister & Wain and was named Thalatta. She is being built for the Norwegian African & Australian Line, Tensberg, Norway. The ship is a sister vessel to the M. S. Teneriffa, which was recently delivered to the Mexican Gulf Line. The Thalatta is built to highest class of British Lloyds and intended for ordinary cargo-carrying trade, the main dimensions being 425 feet 5½ inches by 55 feet by 38 feet 6 inches, and her deadweight capacity being about 11,000 tons. The ship is being fitted with two Burmeister & Wain Diesel engines, developing in total 3,100 indicated horsepower and capable of giving the loaded ship a speed of 11¼ knots. The fuel oil consumption for 24 hours is about 10 tons. Cooling plants for the stores and a few but especially well equipped passenger rooms are arranged.

Generated on 2024-09-12 11:50 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

STEAMSHIP INTERESTS

The Admiral Line has made a slash of 50 percent in charges for carrying automobiles, as a move to stimulate tourist traffic between points on California, Oregon, Washington and British Columbia coasts. The line is now operating five passenger and freight steamers between Puget Sound and Californian points and two between Portland and California. Under the new rates, automobiles are handled under the baggage service.

The New York & Porto Rico Steamship Line has reduced its passenger fares between New York and ports of Porto Rico. The company's sixteen-day cruise around the island, which for years has been a popular vacation feature, is reduced from $180 to $150 for minimum accommodations and the one-way fare from New York to San Juan is now $65 instead of $75. These reductions are permanent.

The Luckenbach Steamship Company inaugurated from San Francisco, with the sailing of the freighter *Pleiades*, a monthly service in the Pacific Coast-Gulf service. The company is now operating four vessels in the service.

Owing to a prospect of good business in the fall, the Furness-Prince Line proposes to resume its Pacific coast European service in August or September. The Furness-Prince Line boats have been going to the Far East for several months.

The Atlantic Fruit Company has cut its passenger rate from New York to Porto Rico. The fares have been reduced approximately 20 percent with the former minimum of $75 reduced to $60. The Atlantic Fruit Company operates a weekly service to San Juan, Ponce, Mayagues, Arecibo and Aguadilla.

TRADE PUBLICATIONS

MICARTA GEARS AND PINIONS.—To fill the demand for a silent gear drive the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has developed a non-metallic gear material known as Micarta which is described in a recent catalogue issued by this company. General technical data on the cutting of gears from this material are contained in the bulletin, as well as tables of pitch, tooth thickness, horsepower ratings, etc.

MERCHANT SHIP AUXILIARIES.—A bulletin containing engineering data pertaining to marine motors and controllers for engine room auxiliaries and deck machinery has been issued by the General Electric Company, Schenectady, N. Y. Concise information is given on horsepower, voltage, speed, weight and approximate dimensions of standard type marine motors; and special attention devoted to the question of lubrication, moisture proof windings, non corrodible fittings, water tightness, etc. The cost of equipment is not given in the bulletin because of the fluctuating condition of the market, but will be supplied from the company's offices.

VELOCITY STAGE TURBINES.—A line of velocity stage turbines, especially designed for high pressure and high temperature steam is described in a catalogue issued by the DeLaval Steam Turbine Company, Trenton, N. J. The turbines are built in sizes up to 1,200 horsepower and are designed to be directly coupled to high speed centrifugal pumps and blowers, small alternating and direct current generators, and by means of double helical speed reducing gears to large pumps and blowers, medium size generators, belt pulleys, rope sheaves and slow and moderate speed machinery.

BUSINESS NOTES

Mr. Adolph Starr, who for four years was associated with The Superheater Company in their marine sales and service division, has severed his connection with that company and has taken up the duties of Assistant Sales Manager for the Seminole Chemical Company, dealers in boiler cleaner, at 75 Vesey street, New York City. Mr. Starr, who has spent a great many years in various branches of the marine industry, is receiving the well wishes of a large number of friends in the marine field.

Mr. L. D. Howell, formerly of the marine department of the Westinghouse Electric & Manufacturing Company, at East Pittsburgh, Pa., is now attached to the marine division at the New York office of the same company in association with Mr. Norris R. Sibley.

The American Bridge Company announces the location of the Vice President's Department, Chief Engineer's Department, Eastern Division Contracting Department and Treasury Department, in the Empire building, 71 Broadway, New York, N. Y. (telephone, Whitehall 3290), which became effective on June 24.

The American Abrasive Metals Company of 50 Church street, New York City, the manufacturers of feralun, alumalun, vulcalun and bronzalun anti slip treads announce their appointment by the Carborundum Company of Niagara Falls to act as United States sales representatives through whom will be marketed the carborundum anti slip tile.

The Titan Iron and Steel Company, Inc., Newark, N. J., manufacturing mechanically puddled wrought iron, has announced the appointment of W. Woodward Williams as vice-president.

The Lake Torpedo Boat Company, of Bridgeport, Conn., announced that at a meeting of the Board of Directors on May 12, Henry J. Miller was unanimously elected president of the company to fill the vacancy caused by the death of his brother, Herbert S. Miller.

MARINE SOCIETIES

AMERICA

American Society of Naval Engineers
Navy Department, Washington, D. C.
Secretary-Treasurer—S. M. Robinson.
U. S. N., Bureau of Engineering, Navy Department, Washington, D. C.

Society of Naval Architects and Marine Engineers
29 West 39th Street, New York.
Secretary and Treasurer—Daniel H. Cox.

National Asociation of Engine and Boat Manufacturers
29 West 39th Street, New York City.
Secretary—R. R. A. Hand.

United States Naval Institute
Naval Academy, Annapolis, Md.
Secretary and Treasurer—Commander H. E. Hewitt, U. S. N.

American Marine Association
15 Park Row, New York
President—E. A. Simmons.
Secretary—Robert B. Lea.

Marine Engineers' Supply Men's Association
Room 507, 30 Church Street, New York.
Secretary—Robert P. Jones.

National Association of Masters, Mates and Pilots
National Secretary—M. D. Tenniswood, 308 Vine St., Camden, N. J.

American Society of Marine Designers
Secretary—B. G. Barnes, 47 Saville Avenue, Quincy, Mass

National Marine Engineers' Beneficial Association
Headquarters 311-315 Machinists Building, Washington, D. C.
Secretary-Treasurer—George A. Grubb.

Atlantic Coast Shipbuilders' Association
1701 Walnut Street, Philadelphia, Pa.
Secretary—C. S. King.

American Steamship Owners' Association
11 Broadway, New York
Vice-President and General Manager—Winthrop L. Marvin.

United States Ship Operators' Association
149 Broadway, New York
President—C. H. Potter

National Merchant Marine Association
Munsey Bldg., Washington, D. C.
President—Hon. J. E. Ransdell.

The Maritime Association of the Port of New York
78 Broad St., New York City
President—Charles H. Potter.
Secretary—Walter F. Firth.

Lake Carriers' Association
Detroit, Mich.
Secretary—George A. Marr.

Neptune Association
21 Pearl St., New York City
Secretary-Treasurer—Captain John F. Milliken.

Ocean Association of Marine Engineers
15 Whitehall St., New York City
Secretary—Bert L. Todd.

CANADA

Grand Council N. A. of M. E. of Canada
Grand Secretary-Treasurer—Neil J. Morrison, Box 886, St. John, N. B.

GREAT BRITAIN

Institution of Naval Architects
5 Adelphi Terrace, London, W. C.

Institution of Engineers and Shipbuilders in Scotland
39 Elmbank Crescent, Glasgow.

Northeast Coast Institution of Engineers and Shipbuilders
Bolbec Hall, Westgate Road, Newcastle-on-Tyne.

Institute of Marine Engineers, Incorporated
The Minories, Tower Hill, London.

ITALY

Collegio Degli Ingegneri Naval e Meccanici in Italia

Generated on 2024-09-12 11:24 GMT / https://hdl.handle.net/2027/mdp.39015080127403
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN